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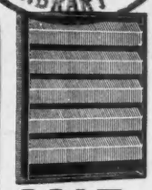

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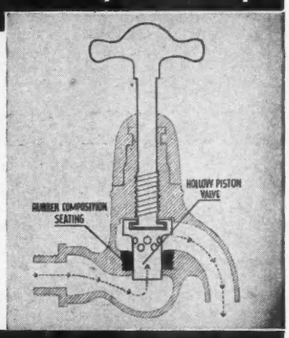

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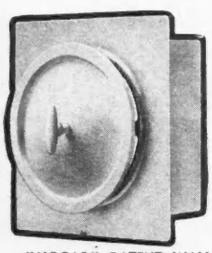

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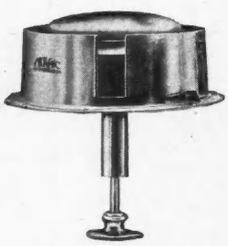

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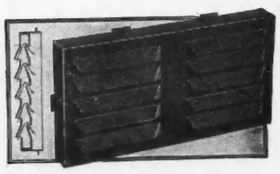

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VOL. CLIX SEPTEMBER 20 1940 No. 5094

REPAIR OF WAR DAMAGE.

WAR damage to buildings and its repair is a subject which is in the minds of many just now, accompanied (as it would be pointless to attempt to disguise) by considerable anxiety as to the policy of the Government in so far as reinstatement is concerned.

The procedure laid down for the "first-aid" repair of houses is, of course, familiar to our readers, though the Memorandum which—in view of the recent intensification of enemy air attack—has been issued to local authorities by the Minister of Health will amplify that knowledge. The Memorandum is printed on page 290, and contains some useful information on the use of alternative materials to glass and timber for first-aid repairs, and also gives definite advice to local authorities to co-opt the services of local panels of architects in ascertaining the extent and incidence of the damage and in deciding where repair is necessary.

More opaque and far less satisfactory is the scheme for the permanent repair or replacement of house property damaged by enemy action. Some of the snags of the scheme as they have cropped up in practice are referred to in a special article by a Legal Correspondent on page 290. A particular provision which has given rise to some misgiving is that which makes prices as at March, 1939, the standard by which the repairs schedule is measured by the county valuer. Jobbing prices, as is well known, are considerably in excess of these, and in some cases are almost double. The unfortunate householder must thus meet a charge for restoring the *status quo* of almost double that at which his local government authority estimates the cost of damage. Even then there is no certainty that the local authority will do more than execute "first aid" repair work, since the power to execute full repairs is contingent upon the need to maintain a sufficiency of accommodation in a district that has received extensive damage.

This last provision is permissive, as will be seen, and the local authority does not appear to be under any obligation to put a house into a permanent state of repair if the owner is unable or unwilling to do the work for himself. The hardship which arises from this is the case of lower-paid working persons is very great, as often the house represents the total capital of a family.

It would seem essential, our Correspondent writes, that a clear-cut definition should now be given of what are in fact temporary repairs. He adds: "They should include works far more important than mere boarding-up and supplying tarpaulins. The cost of all such temporary repairs should by law be met by the local authority at the outset. Furthermore, where deemed advisable, permanent repairs should be at once authorised to be carried out, the extent of the repairs and their cost being agreed at the time between the owner and the local authority, with a right of appeal to the Compensation Board. The actual cost should immediately be made a charge on the property instead of it being left till after the war; the actual cost should not be recoverable from the person in control of the property until after the war. Such procedure would ensure proper compensation being made to the person entitled to it at the end of the war, since it would be based on the prices ruling at the time the damage was done and already agreed."

There is much to commend in these proposals, especially the suggestion that permanent repairs should be carried out now. Not only would this provide much needed work for the industry, but the work would be executed, if put in hand now, at prices far more reasonable than may rule later. Most important of all, it would remove a sense of injustice widely felt, we believe, that because alternative accommodation is available in a district a house may not be rebuilt although representing perhaps the whole of the owner's capital, whereas the same house had it been sited elsewhere would qualify for loan for repairs.

ST. PAUL'S SAVED.

The illustration above, taken on Monday, shows the crater from which the unexploded Nazi bomb was extricated through the bravery of a Bomb Disposal Squad, under the command of Lieut. R. Davies. Some details of a feat which has earned the gratitude of every architect are given on the facing page.

NOTES AND NEWS

The Bomb at St. Paul's.

ONE of the biggest bombs to be dropped on London fell in Dean's-yard, close to the west end of St. Paul's Cathedral, entering the roadway at the edge of the pavement. For three days a Bomb Disposal Section of the Royal Engineers, under the command of Lieut. R. Davies, worked on its removal. When they began to dig they found that a 6-in. gas main had been fractured and three men were gassed at an early stage. The gas company were called in to deal with the main, which had caught fire. No one then knew how close to the flaming main the bomb might have been.

When the gas had at last been cut off the Bomb Disposal Section had to dig for 27 ft. 6 in. into the subsoil before they found the bomb. It proved to be a ton in weight, and looked like a vast hog, about 8 ft. long. Moreover, it was fitted with fuses which made it deadly dangerous to touch or move it.

To save devastating damage to St. Paul's, the risk of removal had to be undertaken, and with great difficulty it was drawn up with special tackle, for high polish had been imparted to it in its passage through the soil, making it difficult to handle.

Two lorries in tandem were required to haul it out of the hole. The streets were cleared by the police from St. Paul's Cathedral to Hackney Marshes. The bomb was placed on a fast lorry and driven away by Lieut. Davies at high speed, the risk of explosion being imminent all the time.

At Hackney Marshes the bomb was blown up by the Bomb Disposal Section. It caused a 100-ft. crater, and rattled the windows, and in one case loosened plaster, in houses far away on the Marshes.

Only the courage and tenacity of the officer, his N.C.O.s and men, prevented St. Paul's from being gravely injured, if not levelled to the ground.

We are glad to note the statement of Canon Cockin that the Dean and Chapter are taking steps to express their appreciation in suitable form. Special prominence has rightly been given to this extraordinary act of skill and bravery, but it is well to remember that it is typical of the routine work that the Bomb Disposal Section is doing every day. The nation owes a debt of gratitude to these men that can never be repaid.

A photograph of the bomb crater outside the Cathedral is reproduced on our frontispiece.

Bombed City Churches.

SEVERAL famous churches in the City of London have been severely damaged by German bombs, though considering the great number of churches in this confined area it is astonishing that so few of them have suffered. Most of the destruction is limited to shattered windows and torn ceilings. Altogether, up to the end of last week, more than 20 churches have suffered some damage in the diocese of London.

Most of the violated churches in the City are the work of Wren (writes a special correspondent of *The Times*), and winding a way along the twisting passages, still full of smoke from smouldering fires, one can appreciate how remarkably they have been protected from the full blast of bombs by modern blocks of offices towering above everything but their lofty spires.

St. Mary Abchurch has suffered more extensively than any other City church from a bomb that hit a high roof a few yards away. Every window has been carried away, hardly a slate remains intact on the roof, and the red-brick turret and the spire are deeply pitted with holes from splinters. Yet the fabric of the church is intact, although the interior was much impaired by blast and flying glass and masonry.

The dignified church of St. Magnus the Martyr, standing near London Bridge, at the very heart of the Empire, also received much superficial damage.

Another remarkable aspect of these damaged churches is the way in which the heavier stained glass has been blown in where newer, plain glass a few feet away has not even cracked. This is especially the case at St. Stephen, Walbrook, where not one of the stained lights portraying the Life of Christ has escaped nor a clear pane suffered. At St. Swithun's, Cannon-street, too, stained middle panels have been carried away, leaving the rest of the windows intact.

There is minor damage, principally confined to broken windows and disturbed plaster, at St. Mary-at-Hill, St. Dunstan's in the East, St. Mary Woolnoth, St. Clement's, Eastcheap, and St. Augustine's, Watling-street, though this list may not be complete. St. Mary-le-Bow barely escaped disaster in one of the fiercest City fires, which burned to the edge of the lane that runs along its west wall.

The first City church to bear the hand of the vandal was the pre-Fire St. Giles, Cripplegate, whose north-west turret received a direct hit nearly a fortnight ago.

Obituary: Peter Fyfe.

GLASGOW'S first director of municipal housing, Mr. Peter Fyfe, has died at the age of 87, after a long and serious illness. He was the leading sanitary inspector in Scotland for years, and was asked by Glasgow Corporation to become director of housing at the end of the Great War. He supervised the construction of Drumoyne, Mosspark, and other housing estates.

Reconstruction in Moscow.

CONSIDERABLE reconstruction works have been undertaken in Moscow during the past five years, according to a Soviet agency. The dwelling accommodation in the Soviet capital has increased during the period by more than 63½ million cubic feet. The building carried out includes 500 large blocks of flats, 379 schools, 400 kindergartens and crèches, six public laundries, seven public baths, 29 hospitals, 11 maternity homes, two dispensaries, etc. During the past two years ten new bridges have been built across the Moscow River. The Moscow-Volga Canal was put into operation during the period. Improvements carried out to Moscow's thoroughfares include the asphalting of over 3½ million square yards of streets and highways.

The Moscow Metropolitan Railway was built during the five years of the city's reconstruction. Much work has also been done during the period on the construction of the Palace of Soviets.

Professional Announcement.

OWING to war conditions causing so much decentralisation of work and the present difficulties in town, MR. WALLACE S. CHAPPLE, F.I.A.S., quantity surveyor, is temporarily closing his London office at 10, Great James-street, Bedford-row, W.C.1, on Friday, September 20, and is transferring to 19, Beech-walk, Ewell, Surrey (telephone: Ewell 2819 (Toll)). The provincial offices at Cardiff, Rugby and Porthcawl will be maintained.

IN 1915.

EXTRACT FROM *The Builder*, SEPTEMBER 17.

"We quote from an article . . . in which it is stated that the present stock of timber in the country is abnormally large and that it is coming in freely, and that in consideration of the restrictions at present affecting building the supply may be considered as being in every respect equal to the demands likely to be made upon it. As we have all heard that the cost of building is being increased by the high price of timber, we must conclude, if the statements made are accurate, that individuals are creating what may be described as a corner to the public detriment. . . . It should be remembered that . . . if we have timber at all it is because the British fleet, which is paid for out of national taxation, protects the individual, and therefore those so protected owe to the nation the obligation to think of public as well as private interests."

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COMING EVENTS

Tuesday, September 24.—Housing Centre. Tuesday Lunches: Miss E. Moberly Bell on "Octavia Hill." 1 p.m.

Saturday, September 28. Institution of Structural Engineers (Yorkshire Branch).—Chairman's Address by Dr. R. H. Evans, Hotel Metropole, Leeds. 2.30 p.m.

Tuesday, October 1.—Housing Centre. Tuesday Lunches: Mr. H. G. Griffin, General Secretary, Council for Preservation of Rural England, on "The War-Time Work of the C.P.R.E." 1 p.m.

WAR-TIME BUILDING PRACTICE

By R. Cotterell Butler, A.R.I.B.A.

29.—INDUSTRIAL PLANNING AND DESIGN.

EMERGENCY FACTORY ACCOMMODATION : CONVERSION OF PEACE-TIME WORKSHOPS.

THE importance of mobilising as many as possible of the small workshops and factories of this country for war-material production is a fact which has been fully realised both generally and officially. The latent productive value of existing plant and accommodation is of course considerable, even when compared with the Government's expenditure of over £36,000,000 on machine tools and scientific instruments in the first six months of the war. The mobilisation of engineering plant of all kinds has progressed rapidly, so much so that at this stage it is next to impossible to find a machine tool of any potential value lying idle.

With regard to existing factory or workshop accommodation, under the organisation of the Ministry of Supply numerous small private firms have turned their works over to the production of war-material or goods for export. However, many potentially valuable shops have yet to be brought into production, and still more are working well below optimum efficiency.

In last week's issue of *The Builder* some indication was given of the part which the architect can play in the reorganisation of industry for war production, by assisting in the work of replanning and generally helping to effect efficient emergency arrangements. The following notes are intended to indicate the practical application of the principles already discussed, by considering the change-over from garage-workshop to production unit, probably one of the commonest emergency reorganisations. The example quoted is a modification of an actual scheme carried out in the early days of the war The modifications are slight and have been introduced solely to avoid the complication of discussing certain special considerations which are by no means typical, and which would be unlikely to occur elsewhere.

The war-time application of most garage-workshops will be their use as production shops (see last week's notes) manufacturing components for assembly elsewhere. Assembly in the works except in an elementary way may not be expected.

PLANNING THE CHANGE-OVER.

The basis of an efficient change-over is that the works manager, with the help of the planner, shall decide the optimum scale of production which may be carried on without either under or over-loading the existing facilities. One of the first considerations to which the planner must turn his attention is whether the existing accommodation may be vastly augmented by the addition of relatively little extension work, whereas it would be correspondingly much reduced were absolutely no such extension work carried out.

THE DRAFT SCHEME.—Having grasped the fundamental characteristics of the manufacturing process which is to be adopted, a survey of existing facilities will enable the manufacturer to arrive at a trial estimate of the scale upon which his accommodation will make production possible. Then, working from this draft scheme, he should estimate his plant requirements, and with the aid of the architect draw up an ideal accommodation schedule for such plant.

With this initial stage reached, the planner and the industrialist may then re-examine the available accommodation and ascertain to what extent the existing space is short of that required, or whether the trial estimate does not make full use of all the facilities available. At this stage decisions with regard to questions of extension must be made, and the planner must consider this side of the problem after the balance of the trial arrangement has been carefully criticised by the manufacturer.

Most of the work of a production factory is carried out on a balanced number of appliances, each designed for a specific job of work. Machine tools are in almost all respects like any other type of mechanical equipment —their positions are predetermined, they are permanently fixed in position, and the relationship between them will, on the whole, remain unchanged.

THE FINAL SCHEME.—The industrialist, or his production engineer, having decided—on the basis of the trial estimate—upon the number of machine tools required, their relation to each other, and the store and other requirements of the factory, the planner must draw up a careful schedule of the general sequences of the process, the accommodation required by each machine tool and its operative or operatives.

From this he must produce a reorganisation plan for the works. His training should enable him to represent graphically with complete accuracy the accommodation available for each process, the lines of circulation, etc., and to be in a position to explain to those whose job it is to understand the actual processing operations exactly

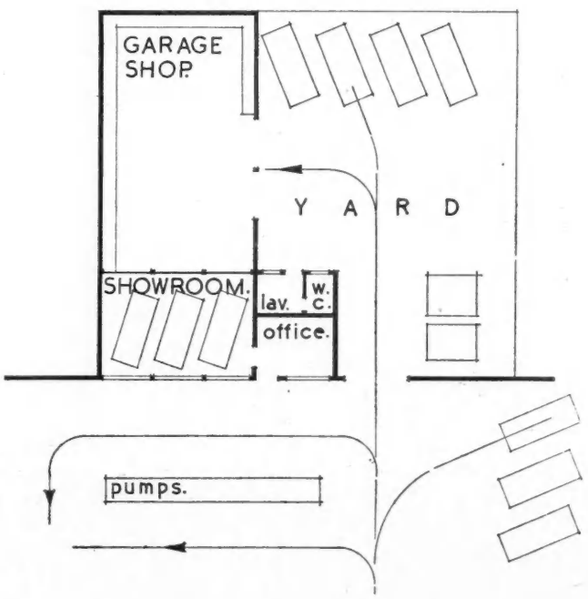


Diagram 1.—A typical medium-sized garage and filling station, before being replanned for war-material production.

what accommodation can be provided. Then, after the necessary consultations, any modifications in the trial plan may be carried out with the knowledge that all departures from theoretical are justified, that the accommodation is to be used at optimum efficiency, and that the outlay on plant and equipment will not be wasted.

Production under these conditions may then start, not, as all too frequently seems to be the case, "to find out how well things are going to work out," but on an organised basis. From practical experience of just such conditions, the importance of starting production on other than a purely empirical basis cannot be too strongly advocated. A colossal amount of money and, what is still more serious, valuable time is at this moment being wasted through muddled reorganisation, and the contribution to the industrial effort which the architect or other trained planner can make must be recognised and put into practice.

GENERAL ACCOMMODATION.—*Diagram* 1, shows the plan arrangement of a medium-sized garage and filling station, and provides a typical example of the kind of building which is now being turned over to war production. Its accommodation was approximately as follows:

Showrooms 700 sq. ft., garage-workshop 1,600 sq. ft., small office 200 sq. ft., and lavatory accommodation.

Referring to last week's *Builder*, it will be found that the main requirements of a production shop are: (1) Raw materials store, (2) production shop, (3) view room, and (4) finished products store. *Diagram* 2 shows the reorganisation carried out in order that the unit might work efficiently as a production factory.

LIGHTING.—Most garage workshops have poor lighting arrangements, that is compared with that required for precision manufacturing work. In this case it was decided to make up this deficiency by means of artificial light, rather than attempt structural alterations. The showroom was naturally well illuminated, and it would have been possible for all machine-tools arranged in that part (if suitably orientated) to be operated during the day without the need for artificial light. This would have meant a flooring arrangement which would not have resulted in a smooth sequence of operations, so the showroom windows were to all intents and purposes ignored, except insomuch that wherever possible viewing operations were scheduled for that end of the shop.

STORES.—The opposite end of the shop to the viewroom was partitioned off at low level to form a raw materials store, and next to this a space for toolroom work. Here the operative responsible for hardening, grinding and other tool maintenance was able to work without interference from the general production sequence. Had the space occupied by the raw materials store resulted in the necessity to curtail the number of machines in the shop, accommodation for stores would certainly have been provided outside, but actually it was found that to use up this space would have needed the addition of so many extra machines as well as those occupying the space, that additional extension would have been required if production was to be balanced.

The value to be obtained from the addition of a finished products store was at once realised, as by this small outlay, not only was the sequence of operations maintained almost ideally, but the better illuminated end of the shop was not interfered with. To have attempted to arrange stores at this end would have meant that either the *shop-viewroom-stores* route would have been cross circulation, or the better-lit part of the shop would have been used for operations requiring no such high standard of lighting.

SANITATION.—The increased number of operatives working in the shop on production work as compared with those working there before reorganisation made some expansion in sanitation accommodation necessary, and it was found possible somewhat to extend the existing provision without extensive alterations or complication.

Reference to the circulation lines shown on *Diagram* 2 shows how largely in conformity with the theoretical requirements of such works the reorganisation was carried out, and how essential the small amount of extension work was, since without this the capacity of the works would have been vastly below that obtained.

(To be continued.)

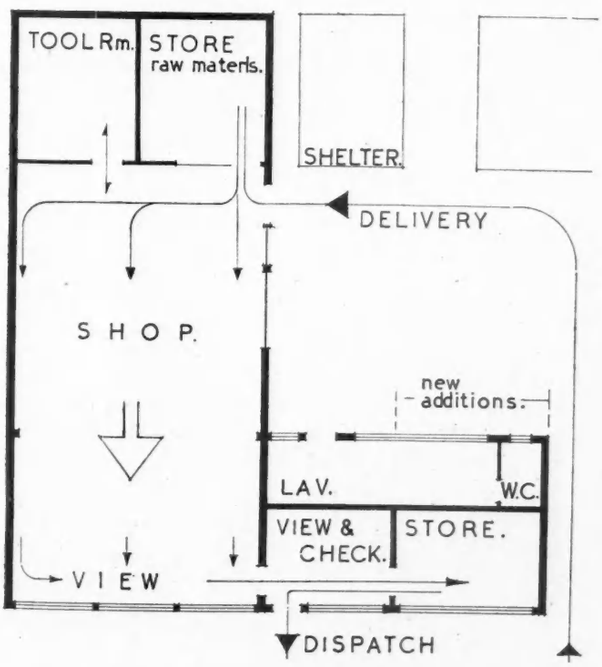


Diagram 2.—The same building modified for war-material production.

Subjects previously dealt with in this series are:—

"The Field of Activity," October 13.

"Billeting Accommodation," November 3, 10, 17.

"Development of Materials and Constructional System as Substitutes for Timber," December 8 and 15 and January 12.

"Roof Construction for Emergency Building Purposes," February 9, 16, and 23.

"Black-Out: Current Technical Considerations." I.—March 8. II.—March 15.

"Social Service Units for Emergency Communities," March 29. April 12, 19, 26. May 17, 31. June 14, 21.

"Substitutes for Timber and Metal for Non-Structural Building Components," May 24.

"Emergency Construction for Post-War Re-Assembly," June 28, July 12.

"Emergency Schools," July 19, 26, and August 16.

"Surface Finishes for 'Alternative Materials,'" August 30.

"Industrial Planning and Designs," September 13, 20.

Copies of these issues may be obtained from the Publisher, 4, Catherine Street, Aldwych, W.C.2.

VIEW FROM ALBERT EMBANKMENT.

"LAMBETH BRIDGE HOUSE," ALBERT EMBANKMENT, S.E.

MESSRS. HOWARD AND SOUSTER, ARCHITECTS.

SITE : This new office building is placed at the southern end of Lambeth Bridge, facing Lambeth Palace. It is the fourth of the large buildings on Albert Embankment to be completed in recent years, the others (going westward) being the Doulton Building, W. H. Smith's stationery store, and the L.C.C. Fire Station.

PLAN : The main front to the river is recessed to afford draw-in space, access to a self-contained car park being given by a drive-in centrally placed. There are two main entrances on this front, a third being placed in the High-street front. The building has been planned for offices and comprises ground and eight upper floors, with a basement whose principal purpose is to provide air-raid shelter accommodation.

The office floors are so planned as to be capable of being easily sub-divided into small or large lettings, each having ready access to central service blocks, consisting of lavatories, lifts, and staircases.

CONSTRUCTION : The basement is framed in reinforced concrete, the upper floors being steel-framed. The ground-floor elevations are faced with cast Portland stone, silver-grey bricks (pointed with silver sand mortar) being used above, up to the top storey, which is also in stone, as are the window cills. The rear elevations are in white bricks. The main roof is covered with three-ply bituminous waterproofed roofing, carrying 2 in. of insulated pumice concrete. Floors throughout are in oak blocks.

Messrs. G. A. Dodd & Partners were the consulting engineers, and Messrs. R. A. Costain, Ltd., the general contractors. Sub-contractors were :

Steelwork, Redpath Brown & Co., Ltd. ; hollow tile floors and beam casings, Caxton Floors, Ltd. ; metal windows, W. James & Co., Ltd. ; silver-grey facing bricks, Greenham, Ltd. ; heating ventilation and hot water installation, Rosser & Russell, Ltd. ; plumbing and drainage, Ellis (Kensington), Ltd. ; cast stonework, Girlingstone ; electrical installation, Berkeley Electrical Engineering Co., Ltd. ; sanitary fittings, W. N. Froy & Sons, Ltd. ; lifts, Penrose Lifts, Ltd. ; wrought ironwork, D. Sebel & Co., Ltd. ; lift landing doors, Caston & Co., Ltd. ; floor tiling and terrazzo work, Ramsdens (London), Ltd. ; letter chute, Nash & Hull, Ltd. ; roof covering, Wm. Briggs & Sons ; marble work, Whitehead & Sons, Ltd. ; granolithic work, Richard Costain, Ltd. ; softwood joinery, P. H. Barker & Son, Ltd. ; hardwood joinery, King's (B.D.J.), Ltd. ; cellulose bronzing, R. Fox & Sons ; spray painting and decorative work, London Spray & Brush Painting Co. ; glazing, Aygee, Ltd. ; flagpole, Spun Concrete, Ltd. ; ironmongery, Robert Adams, Ltd. ; lightning protection, J. W. Gray & Son, Ltd. ; stone carving, Gilbert Seal & Co. ; and external and internal painting, King's (B.D.J.), Ltd.

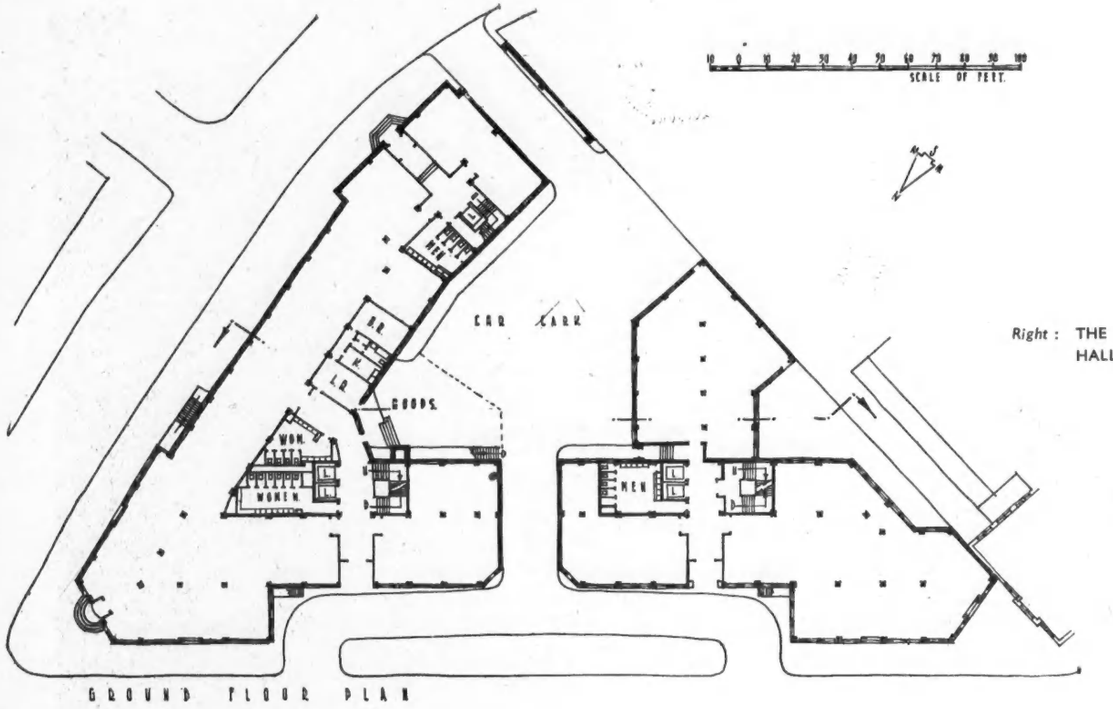
MESSRS. HOWARD & SOUSTER
ARCHITECTS.

"LAMBETH BRIDGE HOUSE," ALBERT EMBANKMENT, S.E.

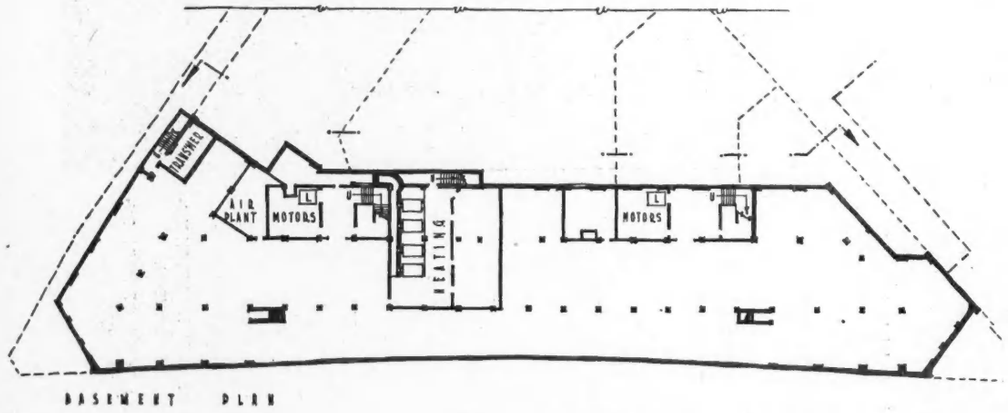
Above : MAIN FRONT. SHOWING DRIVE-IN.

Right : DETAIL OF MAIN ENTRANCE.

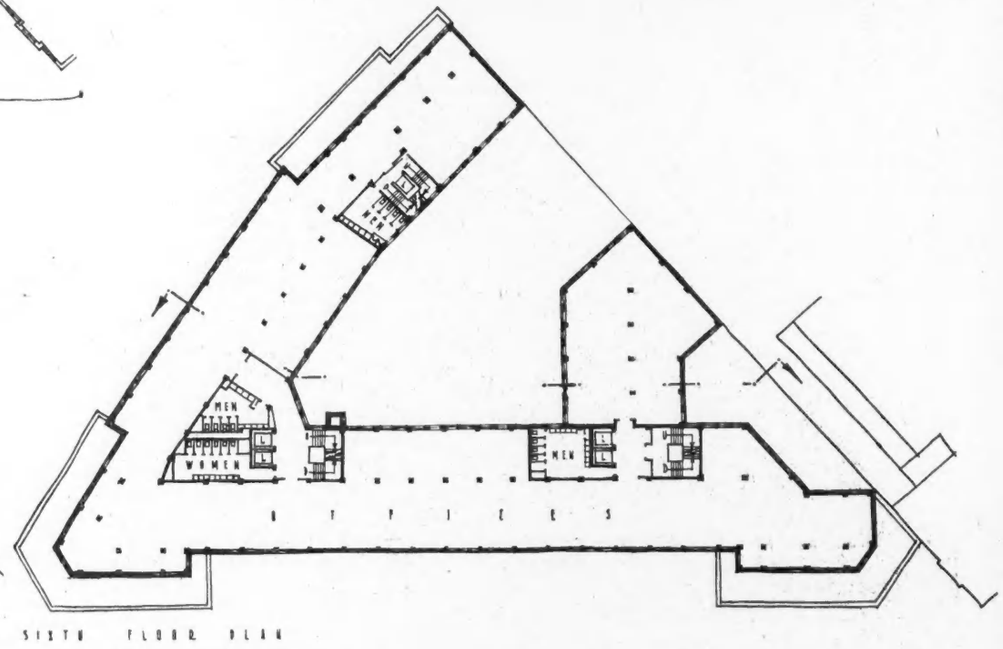
Right : THE ENTRANCE HALL



GROUND FLOOR PLAN



BASEMENT PLAN



SIXTH FLOOR PLAN

"LAMBETH BRIDGE HOUSE," ALBERT EMBANKMENT, S.E. MESSRS. HOWARD AND SOUSTER, ARCHITECTS.

VIEW FROM THE SOUTH

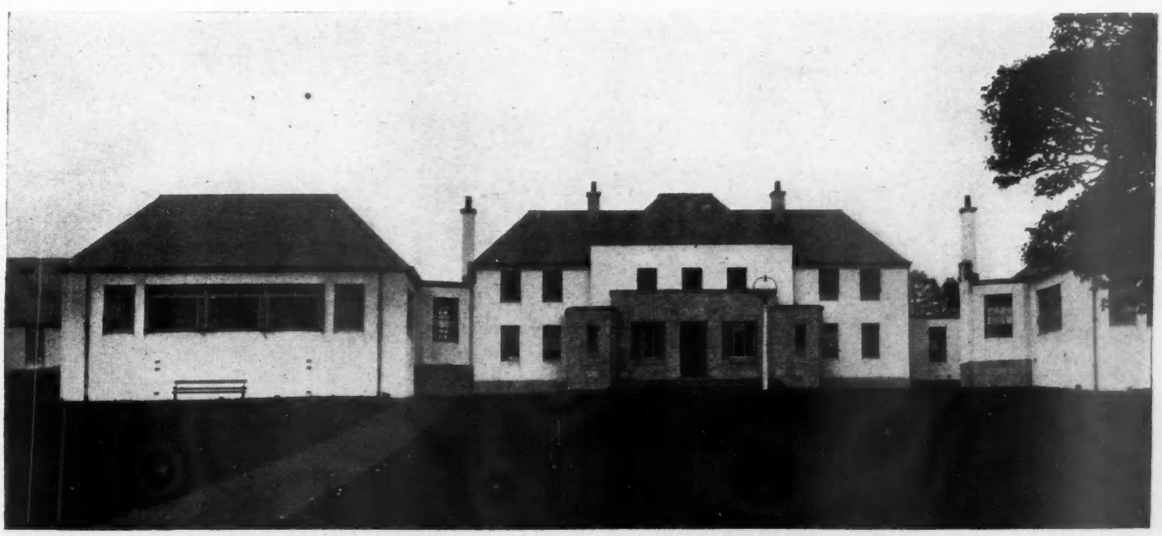
A NEW DISTRICT ASYLUM HOSPITAL.

MR. WALTER ALISON, A.R.I.B.A., ARCHITECT.

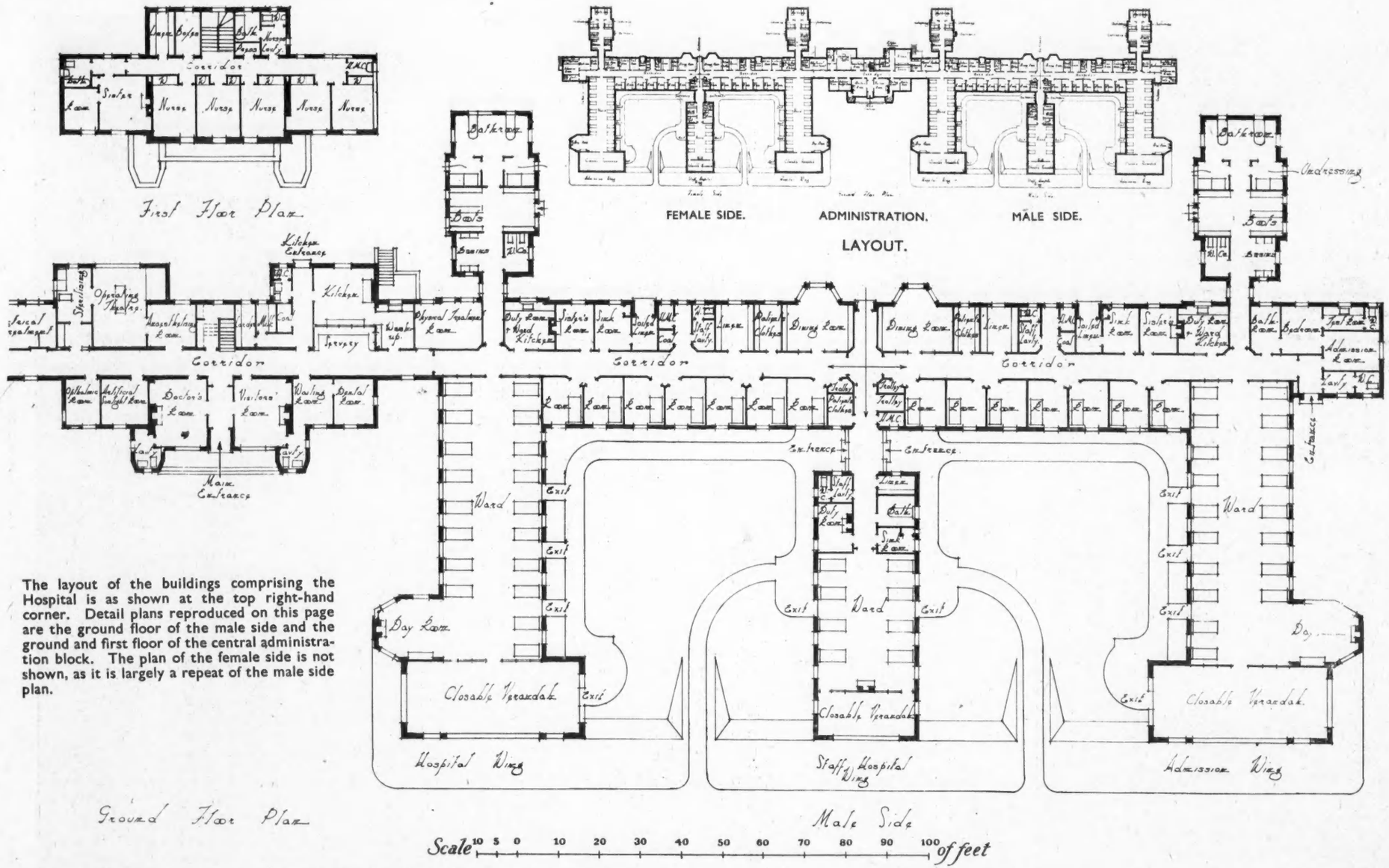
THE building consists of male and female admission hospital wings, male and female staff hospital blocks and male and female hospital wings, and a central treatment block. The admission and the hospital wings each contain a ward for eighteen beds, a day-room, a closable verandah, and seven single rooms with duty room, sister's room, linen store, store for patients' clothes and dining room for up patients. There is also a sanitary block attached to each hospital consisting of baths with dressing cubicles, boot-room with drying rack for coats, etc., lavatory basins and w.c.s. The staff hospital blocks each consist of a ward for eight beds with a closable verandah opening off same, duty room, bathroom, lavatory, w.c., patients' clothes store, and store for linen.

The staff hospitals are so planned that, if necessary, they can be used as isolation hospitals. The centre block consists of doctor's room and visitor's room, each with lavatory off, dental waiting room and treatment room, ophthalmic room, electrical treatment room, X-ray room with dark room off, and physical treatment room with continuous bath, arm and leg baths, shower with spinal spray, upward spray and jet and scotch douche. Upstairs are planned a sister's sitting room, bedroom and bathroom, and five bedrooms for nurses. A bathroom, lavatory and w.c. for nurses are also planned on this floor, as well as a linen store and accommodation for nurses' boxes.

The walls throughout are of 12-in. thick hollow brickwork finished on the outside with "Atlas White" cement, scraped and finished with mica. The roofs are slated; all windows are of steel, those of the wards being centrally pivoted and coupled. The windows of the closable verandahs are of the sliding and folding type. The ward floors are laid with $\frac{7}{8}$-in. thick maple flooring in 3-in. widths and are finished at the walls with a coved skirting. All other wood floors are of Oregon pine edge grain. The floors of all lavatory blocks are of 6-in. square quarry tiles. The heating is on the low-pressure hot-water principle, and each ward is thermostatically controlled from its own wing. The hospital faces in a southerly direction, and the spaces between the wards are laid out with grass and shrubs. Messrs. David Nairn & Son, Ladybank, carried out the mason work. Other firms engaged on the work are on page 299.

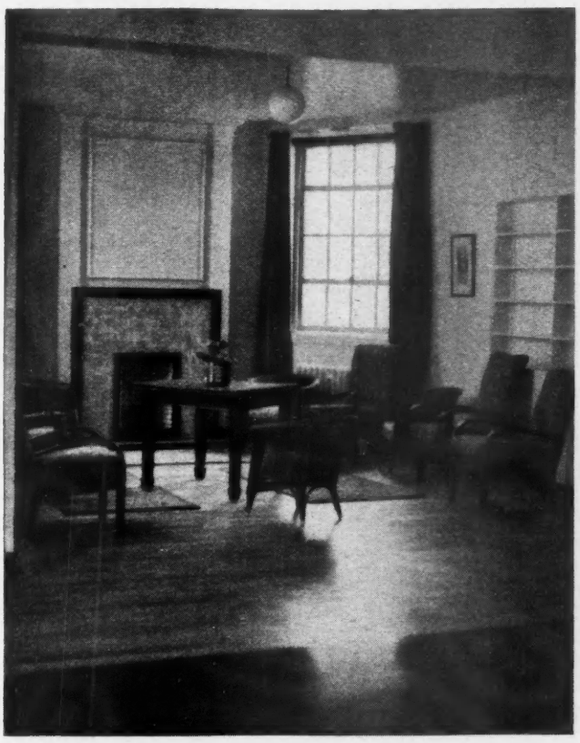


VIEW OF ADMINISTRATION BLOCK AND MAIN ENTRANCE.

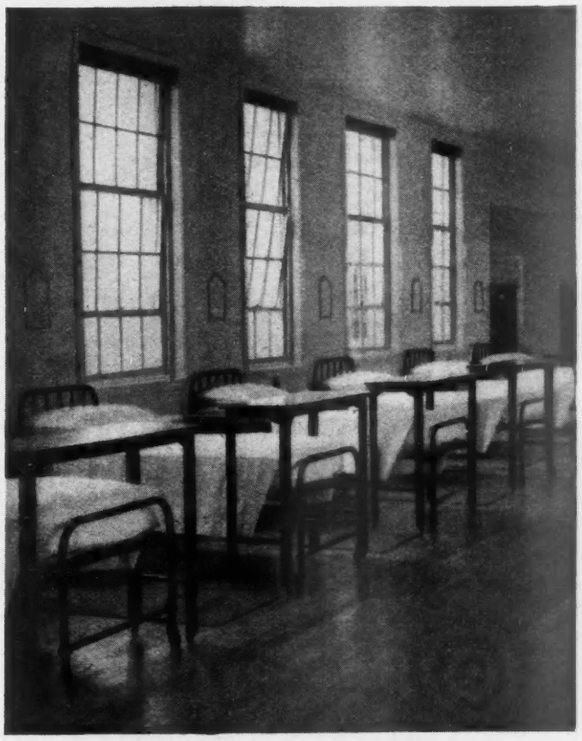


The layout of the buildings comprising the Hospital is as shown at the top right-hand corner. Detail plans reproduced on this page are the ground floor of the male side and the ground and first floor of the central administration block. The plan of the female side is not shown, as it is largely a repeat of the male side plan.

A NEW DISTRICT ASYLUM HOSPITAL. MR. WALTER ALISON, A.R.I.B.A., ARCHITECT.



DAYROOM OFF WARD.

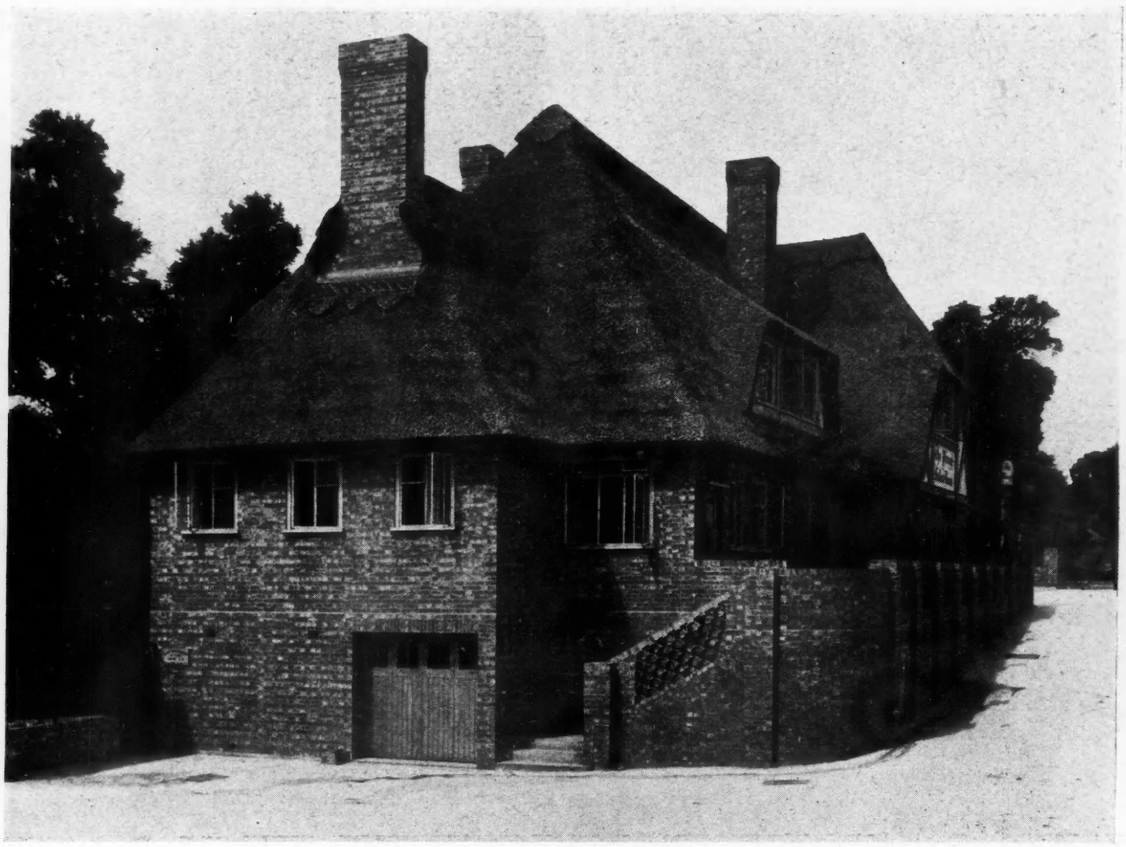


AN ADMISSION WARD.

CLOSABLE VERANDAH.

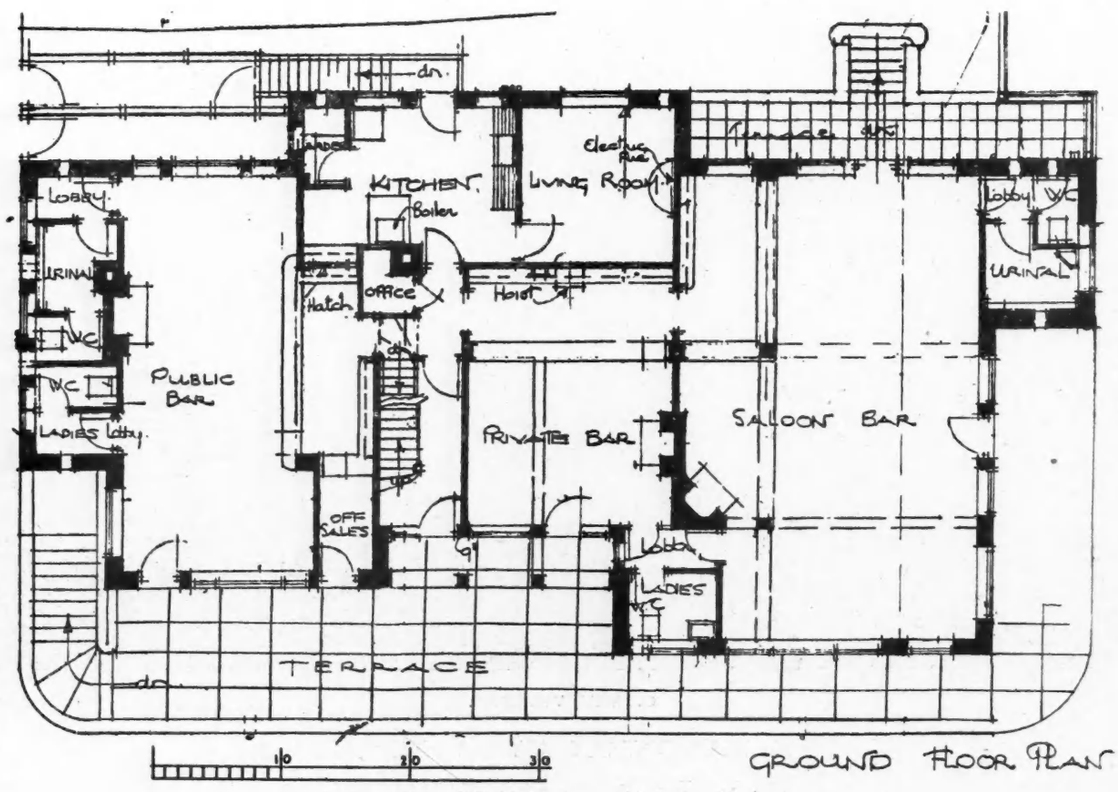
A NEW DISTRICT ASYLUM HOSPITAL.

MR. WALTER ALISON, A.R.I.B.A., ARCHITECT.



THE "PLOUGH" PUBLIC-HOUSE, EALING ROAD, NORTHOLT.

MESSRS. NOWELL PARR & SON, ARCHITECTS.



THE PUBLIC BAR.

These premises are owned by Messrs. Fuller Smith & Turner, Ltd., and were erected to replace the old house, which was not up to the standard of modern requirements. The brewers acquired an additional piece of land at the rear of, and adjoining, the old site, which gave them a frontage on the new Mandeville-road so as to give easy access and exit from their car park, and also to enable the house to be so sited that it could be seen by traffic travelling between Western-avenue and Harrow along Mandeville-road, this now being an important road. The site is situated in rural surroundings, and this to a large extent dictated the design.

The house itself is built in bricks of local manufacture with a certain amount of oak half-timber work, with a thatched roof. The ground floor is devoted to the trade of the house and the first floor is purely domestic. The bar walls are rough-plastered between rough oak half-timbering, and in some cases there is an oak dado of plain and moulded oak boards.

There is a false ceiling over the service bars, which has plaster grids facing the bars, and communication *via* a trunk with an extract fan and outlet in the roof. There are brick fireplaces in the bars and additional heating by low-pressure hot water.

The following is a list of sub-contractors :—Electrical work, Hellier ; heating and hot water, F. H. Handover ; thatching, F. W. Farman ; ironmongery, Yannedis & Co., Ltd. The house was erected by Messrs. Fuller, Smith & Turner with their own building department.

Right : THE MAIN FRONT.

THE "PLOUGH" PUBLIC-HOUSE, EALING ROAD, NORTHOLT.

MESSRS. NOWELL PARR & SON, ARCHITECTS.

REPAIR OF WAR DAMAGE

MEMORANDUM ON STRUCTURAL FIRST-AID

THE Minister of Health, in a communication to local authorities, refers to Circular 1810 of August 18, 1939, and states that he has had under review the arrangements for the repair of war damage to houses in the light of the experience gained since the outbreak of war, and more particularly since the recent intensification of enemy air attacks. He has observed with great satisfaction that the arrangements of all but a few local authorities have enabled them to proceed at once with the carrying out of first-aid repairs, and it is clear that this prompt action has had a pronounced effect in maintaining public morale.

Where air attacks are sporadic, with damage on a relatively small scale, it is frequently possible for local authorities to use methods of immediate repair (such as restoration of tiling and glazing) which under less favourable conditions cannot be adopted without seriously delaying work on other houses awaiting repair. With air attacks on a wider scale and the possibility of bad weather in the autumn and winter, the most important aspect of first-aid repairs is their completion *with the utmost possible speed*, so that the occupants may be spared the necessity of removing to other accommodation, and that further damage to the house and contents by exposure to the weather may be avoided. Speedy action will result not only in a saving in expense to the owner in the long run, but will reduce the work falling on local authorities and their staffs in connection with billeting, requisitioning, etc., for temporary accommodation.

The continued occupation of a house depends above all on the roof and windows being weatherproof, and the aim of the authority should be to see that, before work less immediately urgent is undertaken on any houses, no damaged house is left with roof and windows uncovered. The simplest and quickest method of repair should be adopted. This will be more than ever necessary when the days are shorter. Where damage is extensive, time will not permit of the retiling of roofs, and the use of tarpaulin (where obtainable), roofing felt, waterproof building paper, asbestos sheeting, etc., should be regarded as the normal method of repair. As regards windows, complete reglazing, as a measure of first-aid repair, will in many cases be impracticable; the possibility of further damage may, indeed, render this inexpedient even as part of permanent repairs. The local authority should therefore be ready to employ alternative materials when urgency and expediency demand.

In view of the desirability of economy in the use of glass, the practice of those authorities whose areas have been raided on several occasions of reglazing only one-quarter or one-third of the window surface is commended. Timber will not be available for the boarding-up of windows, but cardboard (or building board painted on the outside), roofing felt, waterproof building paper, or butter muslin, can all be used as circumstances direct. Where nothing but an opaque material is used, light can only be obtained by opening the window, and it is therefore better where possible that translucent material such as butter muslin (which admits both light and air), cellulosed cotton fabric, or one of the glass substitutes on the market, should be used over part of the window.

Much valuable material for repairs will, of course, be obtainable from houses and other buildings which have to be demolished. Some local authorities have been able to use salvaged glass from damaged shop windows for the reglazing of houses, and local authorities are reminded that the Government reserve of materials for first-aid repairs is available to be drawn upon when other sources of supply run short.

Local authorities requiring timber for first-aid repairs can obtain a licence immediately (without a certificate to purchase) on application to the Area Officer of the Timber Control. Private owners doing their own repairs may in some cases ask for the local authority's assistance in obtaining timber, and it will be of great help to the Timber Control if such applications from private owners are scrutinised and a recommendation to the Area Officer given only in cases of obvious necessity.

On the occurrence of widespread damage a local authority have to ascertain the extent and incidence of the damage and to decide where repairs are required. Neither this task nor the supervision of the repairs can be carried out with the speed which is all-important without an adequate technical staff. Many authorities, by arrangement with local panels of architects, have made certain of obtaining the additional technical services required. Authorities who, for local reasons, would find it difficult to make such arrangements, are advised to get into touch in an emergency with the local society of architects. It is also strongly recommended that arrangements should be made between neighbouring local authorities for mutual help in the shape of both labour and materials.

As regards labour, it is contemplated that it will often be necessary to arrange for men to be taken temporarily off other and less urgent work in order to carry out first-aid repairs which are of the highest degree of priority. Where the local authority cannot obtain necessary labour they should at once get into touch with the Local Employment Exchange. The Minister is aware of the doubts felt by some local authorities as to the legality of the action taken by them in the best interests of the inhabitants of their areas—owners as well as occupiers. He is glad to know that the authorities have not allowed such doubts to deter them from taking immediate action, and he hopes shortly to introduce into Parliament an amending Bill designed to regularise past action and to enable future work to be carried out with the same promptness as hitherto.

As local authorities are aware, the repair of factories working for the Supply Departments is being co-ordinated by Local Reconstruction Panels which have been set up in various areas, and that these panels will be responsible for making repairs and for securing the release of the necessary materials. There will, however, be factories, warehouses and other commercial buildings for which the panels will be unable to vouch, and it has been decided that materials will be released in such cases either from the Government Reserve Stores or by the Timber Controller or Steel Controller, or, in the case of cement, by the suppliers on the recommendation of the Surveyor or other authorised officer of the local authority who is in charge of the organisation for the first-aid repair of houses. It is not expected that this officer should check the demands in detail, but that he should indicate that the amount asked for is *prima facie* reasonable. The Minister would accordingly be glad if the local authority would make arrangements for dealing with such requests as speedily as possible.

SOME COMMENTS

BY A LEGAL CORRESPONDENT.

THE Housing (Emergency Powers) Act, 1939, gave local authorities power to make fit for housing purposes, if necessary, buildings of any kind damaged by war. The Act apparently applies to the present war only. Any building, also other than those previously used for human habitation, comes within these powers of the local authority, if it is practicable at a reasonable expenditure to render it fit as housing accommodation. But the authority must be able to show that, at the time, there is a need and lack of housing accommodation in their area; that they are able, and intend, to recondition the damaged building satisfactorily; and that the person (or persons) having control of the building is, in the knowledge of the local authority, unable or unwilling to carry out the necessary reconditioning himself and to their satisfaction.

It is clear that the decision as to what reconditioning should be carried out and the justification of the proposed expense rest with the local authority in the first instance where damage is defined as meaning damage caused by enemy action, or in repelling enemy action, or by measures taken to mitigate the consequences of damage caused by enemy action or in repelling enemy action.

The "person having control" is that person who receives the rackrent, *i.e.*, rent which is not less than two-thirds of the net annual value of the property, whether on own account, or as agent or trustee for any other person, or who would so receive it if the house were let at a rackrent.

The local authority is empowered, with the consent of the Minister of Health, to serve, on the person having control of the building, notice as to the works required to be executed, and though that person may first have made representations thereon, the local authority, after considering these, may enter the building and carry out the whole of such works as are included in the notice they have served.

Temporary repairs urgently necessary to avoid risk to health may be executed by the local authority at once and without first obtaining the consent of the Minister of Health. The precise nature of these temporary repairs is not defined, though it is clear that they must be such as to make the premises wind- and water-tight, and otherwise offer no risk to health, which probably only means stopping up

broken windows and other gaps with boards, tarpaulins or the equivalent, or holes in the roof where slates, tiles or other roofing has been displaced. If obtainable, roofing felt, corrugated iron, asbestos sheets, wallboards, etc., may be used for temporary repairs on these occasions.

The total cost of the repairs is registered as a charge on the property concerned, but there is no right of recovering compensation until after the war.

It is provided that a special officer is to be appointed to take immediate charge of people whose houses have been seriously damaged in air raids. He is to wear a blue and white armlet.

A reminder was circulated quite recently by the Air Ministry that various organisations, chiefly insurance and public utility companies, architectural and engineering societies, are breaking the Defence Regulations of 1939 by collecting information about air-raid damage, though it is not stated which specific Regulation is referred to. Unfortunately, the strict enforcement of this provision would deprive architects and engineers of work at a time when they are already hard hit by the war. It would seem that their services should be legitimately available to owners of property which has suffered damage, and we suggest that the Compensation Board recently set up might consider this, it being actually the only tribunal of appeal in the matter of war damage.

The Landlord and Tenant (War Damage) Act, 1939, by the way, mainly aims at providing relief for those who are under any contract or obligation to repair premises let or tenanted by them. They are not liable to make good any war damage, and the Act cannot be contracted out of by those under such contract or obligation.

The legislation which we have reviewed above was enacted comparatively early in 1939 before the outbreak of war; and Regulations based thereon were also issued long before there had been any actual war damage. Moreover, values of both labour and materials were then more or less static; whereas now, at a time when war damage has in fact occurred, labour and materials, in spite of the latter being controlled, have not only increased in value, but prices may continue to rise rapidly, so that to estimate cost is difficult. It follows that a real grievance exists for those whose property has undergone war damage. For since there is no right of recovery till after the war for repairs so executed, then if the basis of such recovery rests upon pre-war prices and not on the actual cost of the repairs as and when executed, they stand to be out of pocket. The difference between the actual amount paid and the amount eventually received by way of compensation promises not to be fair compensation.

In some places, in order to cope with the repair of war damage in an efficient and economical manner, builders have set up local " pools."

Their object, among other things, is to control labour, the purchase of materials, and accountancy in connection with works in each " pool " district. These pools should at any rate afford a solution of many problems. If properly managed their existence will assure work being done at prices commensurate with those determined at the time the legislation was passed.

In practice, it is clear that no one should commence to repair premises temporarily or permanently without first obtaining the sanction of the local authority —that is if he hopes to claim compensation eventually—if even he or she may have been bombed out of house and home and have no alternative lodging and is able to pay for repairs.

Moreover, such temporary repairs as are permissible may actually be insufficient, in the light of present-day experience, to make the premises even habitable; and again temporary repairs cannot be carried out until the local authority concerned has determined that there is a lack of alternative housing accommodation in the area to which the sufferer may be removed.

The Times, in discussing the problem of damage by air raids, recently referred to an owner (a widow) whose house was struck by a bomb and made uninhabitable. The local authority put a tarpaulin over the roof and boarded up the building and left it to the owner to make it otherwise habitable. The county valuer, so it was stated, had made an estimate of the damage on prices obtaining in March, 1939; whereas the lowest estimate obtained for making the house habitable, after an architect had been consulted and had based his opinion on present-day cost of materials and labour, was more than twice that of the county valuer; though the requirements of the schedule of repairs of the county valuer and the architect differed very little.

The owner endeavoured to obtain a loan from the local authority to carry out the repairs, but was informed that the powers of the local authority were twofold: (1) " the power to spend money on urgent ' first-aid ' repairs, such as putting a tarpaulin over a broken roof, (2) the power to execute full repairs when it is necessary to repair the houses concerned in order to maintain a sufficiency of accommodation in a district that has received extensive damage, subject also to certain provisions as to notice being served on the owner: Although ——— is well filled with evacuees, I do not think the circumstances there yet amount to those which the authorities' emergency powers were designed to meet." And so the widow had to pay for her own repairs and has to wait for compensation until the war is over.

It is clear that the powers of local authorities should be revised and amended and that a clear-cut definition should now be given of what in fact are temporary repairs. They should include works far more than mere boarding-up and supplying tarpaulins. The cost of all such temporary repairs should by law be met by the local authority at the outset. Furthermore, where deemed advisable, permanent repairs should be at once authorised to be carried out, the extent of the repairs and their cost being agreed at the time between the owner and the local authority, with a right of appeal to be made to the Compensation Board. The actual cost should be immediately made a charge on the property instead of its being left over till after the war; the actual cost, however, should not be recoverable from the person in control of the property till the end of the war. Such procedure would ensure proper compensation being made to the person entitled to it at the end of the war since it would be based on the prices ruling at the time the damage was done and already agreed.

DRY ROT OUTBREAK AFTER FIRE

DAMAGE AND HOW IT CAN BE PREVENTED

By K. ST. G. CARTWRIGHT, M.A., F.L.S. (Forest Products Research Laboratory).

EVERY year a proportion of the numerous cases of dry rot upon which the Forest Products Research Laboratory is consulted is found to originate as the aftermath of fire damage. The story is usually very much the same, and runs as follows :—

No trouble from dry rot had been experienced previously, but a few years after the occurrence of a fire an outbreak is discovered. Investigation of such cases then reveals that in order to extinguish the fire large quantities of water had been employed, some of which had run under floor coverings and soaked the masonry, thoroughly wetting the woodwork. The property may then have been left unoccupied for a period and no adequate steps taken to dry out walls and woodwork. In other cases, repairs have been undertaken immediately and the floors covered again without time being allowed for adequate drying.

In war time, fires due to incendiary bombs are likely to be of frequent occurrence; consequently the risk of dry rot is increased, particularly as in many cases damaged property may be left unoccupied for a considerable period. This risk can be minimised if it is realised that wet timber and walls may lead directly to dry rot. Certain simple measures can be taken which involve little or no expense and may save heavy expenditure later.

The following precautions will do much to lessen the risk :—

1. Make good any damage to roofing, guttering, etc. (*i.e.*, make the house waterproof), even if it is not possible to carry out all repairs.

2. Remove all floor coverings, such as linoleum, which retard the escape of moisture.

3. When possible, remove damp pugging (" deafening ") between floor and ceiling, as this holds moisture for long periods and many outbreaks of dry rot have been traced directly to neglect of this precaution.

4. Increase ventilation wherever possible by opening windows during favourable weather conditions.

5. Light fires and keep central heating on, provided this is done in conjunction with free ventilation. In the absence of ventilation the warmth will cause more rapid development of dry rot.

For any replacements, well-seasoned timber should be employed when procurable, but where this is not obtainable and drying out of the woodwork is likely to be slow, treat the timber with a good wood preservative. Such a treatment, if applied also to all the old sound woodwork which has been wetted and to any new replacements, will greatly lessen the subsequent risk of dry rot.

ANTI-SCATTER TREATMENTS FOR GLASS

B.R.S. RECOMMENDATIONS.

THE following is a note on "anti-scatter" treatments which have been tested* at the Building Research Station and found to afford a useful measure of protection against the danger of flying glass. It should be realised that no treatment applied to the glass will prevent it being broken, nor will even increase its chance of remaining unbroken when a bomb explodes near by. *The lists of proprietary materials must not be taken as exhaustive of the products on the market which can give this measure of protection.* It is necessarily limited to those products that have been tested at the Station.

This note mentions four different types of treatment, and includes practical advice on the application of each. It is not intended to suggest that all four types afford an equal measure of protection, but tests have shown that all the materials named, if properly applied, are useful. The choice of a particular type of treatment for a particular job must be left to the user, since it will depend upon various considerations such as the size of the panes, the importance of the windows to be protected, cost, etc. Moreover, supplies of any one type of material may not always be immediately available, and possible alternatives may have to be considered.

General Note on Application.—Before any treatment is applied it is important that the glass should be clean and free from oil or grease. When using any proprietary article, attention should be paid to the manufacturers' instructions for its use.

1. Textile Materials.

According to tests, almost any strong textile netting, such as curtain net, or similar fabric, can provide good "anti-scatter" protection if it is stuck firmly to the glass. Nettings can be obtained for the purpose either plain or ready treated with adhesive. With the latter type there are various methods which different manufacturers recommend to get the best results from their own materials, *e.g.* :—

(i) Dip the netting in water for one or two seconds only, then shake out the excess water and apply the net to the glass.

(ii) Dampen the netting by spreading it on a wet cloth.

(iii) Wet the glass, and then apply the dry netting, patting it into place with a wet cloth.

The material should be cut large enough to allow for shrinkage and to permit of it being carried over the frames and stuck to them as well as the glass.

Plain ungummed netting can be affixed with any convenient strong adhesive, *e.g.*, cold-water paste, flour paste, or gum. It is desirable to add a little glycerine (say, 5 per cent.) to the adhesive to prevent it from drying out completely and becoming brittle. The adhesive is brushed freely on the glass and the netting pressed on. In whatever way the netting is fixed, *i.e.*, whether it is of the ready-gummed type or a plain material applied with a separate adhesive, it is advisable to varnish over the edges at least, or secure them with adhesive tape, to prevent the netting coming unstuck. While fixing, it is often convenient to hold the top of the netting in position by drawing-pins or (in the case of steel-frame windows) with adhesive tape.

Although netting applied in either of these ways will generally be quite effective in preventing glass flying, the treatment will not necessarily be strong enough to hold up large panels of heavy glass and keep the fragments in place after the window is broken. A stronger and also a more waterproof job can be made by bedding the netting in a good elastic varnish; a full coat of varnish is brushed on the glass, allowed to get tacky and the netting applied. Finally, a further coat of varnish is applied over the whole area.

The list of nettings which have been provisionally approved is as follows :—

[N.B.—It is proposed to prepare a standard specification for textile nettings for window protection; until such time as the specification becomes operative, nettings which give satisfactory results under the tests now used at the Building Research Station are given "provisional approval" only.]

R. E. Ashworth & Co., Ltd., 37, Stoney-street, Nottingham : (i) "Sunenta" large squares, (ii) "Sunenta" small squares, (iii) "Sunenta" patterned.—Wallis Binch, New Basford, Nottingham : (i) No. 22 and (ii) No. 7682.—Edward Cope & Co., Ltd., New Basford, Nottingham : No. 72 or No. 147.—Daybrook Fabrics, Ltd., Youngs Factory, Alfred-street South, Nottingham : (i) Dessanite quality No. 1 and (ii) Dessanite quality No. 2.—Dobsons and M. Browne & Co., Delbeta House, Nottingham : (i) No. GF 3698, (ii) No. GF 3958 and (iii) No. 10489/GF3169½.

M. Jacoby & Co., Ltd., Nottingham : No. 9387.—Alexr. Jamieson & Co., Ltd., Darvel, Ayrshire : No. 7505.—Harry Johnson (Nottingham), Ltd., 38, St. Mary's-gate, Nottingham : No. 4508.—Key A.R.P. Products, Keystone House, Adeline-place, W.C.1 : Splinterproof white netting.

W. J. and T. Lambert & Co., Ltd., Talbot-street, Nottingham : (i) Back-glued net, (ii) Impregnated net and (iii) Mosquito net.—Levin Bros. & Co., Ltd., Middle-pavement, Nottingham : (i) No. 9061 and (ii) No. 9062.—R. Newbold, Kayes-walk, Nottingham : anti-splinter, anti-dazzle.—A. & F. H. Parkes, (Nottingham), Ltd., Anglo-Scotian Mills, Beeston, Notts : "Nuart" anti-splinter net.—C. & J. Robertson, Ltd., Ladeside Factories, Galton, Ayrshire : (i) No. AS1 and (ii) No. AS250.

Stirling Bros. & Co., Ltd., Darvel, Ayrshire : (i) No. 14960, (ii) No. 34961/x.—Frank Tatham, Ltd., 12, Plumptre-street, Nottingham : No. 252.—L. O. Trivett, Ltd., Trivetts Buildings, Short Hill, Nottingham : (i) No. A4558 and (ii) No. A4559.—Wallace & Co. (Netherplace), Ltd., Netherplace, Newton Mearns, near Glasgow : (i) No. A1 and (ii) No. A2.—George Walton & Sons, High-pavement, Sutton-in-Ashfield : anti-splinter net.—A. Herbert Woolley & Co., Ltd., Nottingham : (i) No. 0800/1, (ii) No. 0801/1 and (iii) No. 0802/1.

All the above nettings were supplied ready treated with adhesive. In addition, the following untreated netting has been tested in conjunction with various separate adhesives and given satisfactory results :—

Whiteley, Stevens & Co., Ltd., Stapleford, near Nottingham : No. 6512.

Further, the following netting has been tested in conjunction with a special varnish supplied with it for use both as the adhesive and as a subsequent coating; this treatment has been provisionally approved :—

Donald Macpherson & Co., Ltd., 21, Albion-street, Manchester : Foochow anti-shatter netting and varnish.

2. Transparent Films.

A good degree of protection can also be obtained by applying transparent film, of which there are many different makes. Those tested have been of two types, namely, cellulose film and cellulose acetate film.

A. (a) CELLULOSE FILM, *e.g.*, those marketed by the following firms : (1) "Celilynd," British Celilynd, Ltd., Burwell Works, Lea Bridge, Leyton, E.10 (in this case the film was reinforced with light textile netting).—(2) "Cellophane," British Cellophane, Ltd., 17-19, Stratford-place, W.1.—(3) "Diophane," Transparent Paper Co., Bury, Lancs.—(4) "Rayophane," British Rayophane, Ltd., Wigton, Cumberland.—(5) "Sidac," British Sidac, Ltd., St. Helens, Lancs.

To be effective, the thickness of the cellulose film should be equivalent to a "substance" of not less than 60 grammes per square metre. In applying cellulose film it is important that the adhesive should be flexible, *i.e.*, one which does not become brittle on drying. Ordinary liquid gum can be used if glycerine or treacle is added in the proportion of about one teaspoonful to two tablespoonfuls of gum, or, alternatively, an adhesive can be made from gum arabic and glycerine as follows : Crush the lumps of gum arabic to a powder. Into 1½ pints of hot water sprinkle 1 lb. of the powdered gum, stirring continuously. Keep the mixture hot (in a double saucepan) till all the gum is dissolved, stirring from time to time. Then cool and stir in 7 oz. of glycerine. If glycerine should be unobtainable, treacle may be used instead.

The adhesive should be brushed on the glass and the dry film applied with a roller, preferably in strips, say, 4 in. wide, and placed side by side. The film should on no account be wetted or dipped in water before it is applied, since this weakens the film and is likely to make it ineffective.

(b) SELF-ADHESIVE CELLULOSE FILM—*i.e.*, film ready-coated with a tacky adhesive.—This type of material is usually supplied in rolls of widths varying from 1 in. to 4 in. It is marketed by the following firms :—(1) "A.R.P. Window Tape," British Cellophane, Ltd., 17-19, Stratford-place, W.1.—(2) "Cerrux," Cellons, Ltd., Kingston-on-Thames. (In this case the self-adhesive film is supplied together with a varnish; the two together constituting the "Cerrux Process."—(3) "Durex," Durex Abrasives, Ltd., Arden-road, Adderley Park, Birmingham, 8.—(4) "Sellotape," Adhesive Tapes, Ltd., Brunel-road, Acton, W.3.—(5) "Transotape," John Gosheron and Co., 1-6, Beech-lane, E.C.1.

Self-adhesive film has the advantage that it needs only to be pressed on the glass (again with the aid of a roller) and gives a better finished appearance than plain film applied with a separate adhesive. It is not absolutely necessary to cover the whole of the glass with this material, but, naturally, the closer the strips the greater will be the protection (see section on "Strip Treatments"). When using this cellulose film it should be carried to the edge of the glass, but not over the frames. The reason is that it tends to shrink slightly on exposure, and if attached to the frames it will tend to lift at the edges of the glass.

N.B.—Since cellulose film, whether plain or self-adhesive, is affected by moisture, it is recommended that the treated panes should be given a waterproofing coat of a good pale varnish or lacquer.

B. (a) CELLULOSE ACETATE FILM—*e.g.*, those marketed by the following firms :—(1) "Bexoid," B. X. Plastics, Ltd., Hale End, E.4.—(2) "Clarifoil," British Celanese, Ltd., Celanese House, Hanover-square, W.1.—(3) "Dialux," Dufay Chromex, Ltd., Elstree, Herts.—(4) "Erinofort," Erinoid, Ltd., Stroud, Gloucester.—(5) "Rhodophane," May and Baker, Ltd., 42/3, St. Paul's Churchyard, E.C.4.

(b) CELLULOSE ACETATE FILM REINFORCED WITH TEXTILE NETTING—*e.g.*, as supplied by the following firms :—

(1) Cellofabrics, Ltd., 11, Gillingham-street, S.W.1.—(2) Dobsons and M. Browne and Co., Ltd., Delbeta House, Nottingham.—(3) Dufay Chromex, Ltd., Elstree, Herts.

Cellulose acetate film cannot be stuck to glass satisfactorily with ordinary gum or paste, but most manufacturers can supply suitable adhesives for their own materials or suggest recipes for making them up.

(c) SELF-ADHESIVE CELLULOSE ACETATE FILM.—This type of film closely resembles in appearance the self-adhesive cellulose film mentioned above and is used in the same way. Varnishing is not quite so necessary in this case, as cellulose acetate film is less affected by moisture than cellulose film; nevertheless, varnishing helps to preserve the film and adhesive and is therefore recommended. The film is

* Arrangements have recently been made for such tests to be undertaken by the Building Research Station for the manufacturer on payment of a fee of one guinea, a report being then issued under conditions which permit the firm to make free use of it by publication or otherwise, provided the report is given in full or, alternatively, in the form of an approved abstract.

marketed by the following firms : (1) Durex Abrasives, Ltd., Arden-road, Adderley Park, Birmingham, 8; (2) "Lassophane," Herts Pharmaceuticals, Ltd., Bessemer-road, Welwyn Garden City.

3. Strip Treatments.

While treatments which are applied all over the glass, such as those described above, are to be preferred, strips of suitable strong materials spaced apart can often be used with good effect. Obviously, the wider the strips themseves and the more closely they are spaced, the better. Provided the strips are at least 1½ in. wide and are crossed one over another, they may be placed up to 4 in. apart. If narrower strips are used, or if the strips are not crossed, they must be placed closer together. When using proprietary materials in strips, the manufacturers' recommendations should be followed.

Suitable materials for strip application include :—

(1) The transparent cellulose and cellulose acetate films mentioned in 2 above, particularly the self-adhesive varieties. After applying strips of these materials it is recommended to varnish over the whole area of the glass; (2) self-adhesive cloth tapes—pressing these on the glass with a warm iron helps them to stick better; (3) any strong textile material stuck on the glass; and (4) metallic strip applied with a suitable adhesive. One such which has been tested is "Perma Led," supplied by Perma Led Metal Co., Ltd., 41, King William-street, E.C.4.

Thin brown paper is not very effective, but stout brown paper strips, closely spaced and well stuck to the glass, will provide some protection.

4. Liquid Coatings.

A large number of liquid preparations based on rubber latex or synthetic resins have been placed on the market as "anti-shatter" coatings, but the general impression gained at the Station as to their value has not been very favourable, since so many of those tested have been either ineffective in the first instance or have become so after a few weeks on the window.

The standard of durability which is at present adopted in tests on these liquids at the Building Research Station is that they should retain their efficacy for at least four months under normal conditions of exposure. In the case of rubber latex compositions, no accelerated ageing test is yet available which would serve to show whether a material submitted is likely to have the necessary durability; hence it is necessary to rely on natural exposure for four months before approval can be given.

In the case of synthetic lacquers, however, a heating test has been devised which serves to eliminate the more short-lived materials. If a material passes this test the Station is prepared to receive any authentic evidence which the manufacturers can furnish regarding its durability, for consideration with a view to granting provisional approval.

So far two materials, named below, have been found under actual test to remain effective for at least four months, and there are some half-dozen others which have given promising results under the heat test; these are being further investigated. The two are : (1) "Arpco," The Calico Printers' Association, Ltd., St. James-buildings, Oxford-street, Manchester, 1; (2) "Slick," Slick Brands, Ltd., Waddon, Croydon.

It cannot be too strongly emphasised, however, that to be effective and durable these materials must be applied so as to give a fairly thick coating. A thickness of not less than 2/1,000 in. should be aimed at, and this means that at least two good coats, in addition to any priming treatment recommended, should be applied. A lack of durability may not be so serious a matter if a fresh coat of the liquid is applied from time to time, say, about every two months. The need for this, however, may not always be apparent, since treatments often become ineffective (by becoming brittle) without any change in their appearance.

For large panes of glass, liquid treatments alone are not recommended; in general, some other means of protection should be adopted, but a liquid treatment might be used in a supplementary capacity, *e.g.*, for treating areas of clear glass between strips of material such as those mentioned in 3 above. It is also possible to reinforce a liquid treatment by embedding a textile netting or transparent film in the coating.

EVACUATION: THE "UNDER FIVES"

A.A.S.T.A. REPORT.

THE Evacuation Committee of the A.A.S.T.A. has issued a Report, "Evacuation : The 'Under Fives,'" in which it is maintained that "the protection of young children from the horrible effects of bombing raids and the impact of invasion is an essential part of our defence measures. Only by planned evacuation of the helpless can we avoid panic flights such as took place in France."

The Report continues :—

The recent intensification of bombing has affected the towns far more than the country, and, whatever may happen in the future, it will always be a fact that a bomb in a densely populated area will cause more casualties than a similar bomb in a rural district. In the opinion of the Committee provision must be made for the removal of children under five and expectant and nursing mothers from towns that are likely to suffer heavily from bombing or possible invasion. At present there is no scheme at all in which they could take part, although some 750,000 babies and over 1,000,000 children from two to five should be moved to safer areas. Overseas evacuation is no solution for this age group, and in any case it can be applied to only a small proportion of the school children, for whom it is more suitable. The unexpectedly large response to this scheme shows that parents will support evacuation if the advantages are made clear.

The new scheme proposed, which benefits from the lessons of the first Government scheme, recognises that among the basic problems of the evacuation of the under-fives are proper accommodation, the provision of adequate child care and attention to family problems. Psychologists and common sense alike tells us that children under two could be looked after by their own mothers, while two- to five-year-olds can be evacuated separately if they are properly cared for by foster mothers in small nursery school groups.

In order to make the arrangement work smoothly it is proposed that temporary day nurseries be set up in evacuation areas and that authorities in both evacuation and reception areas be given equal powers in initiating arrangements.

It is pointed out that "for the evacuees considered in this report, group living with communal facilities is essential." For this purpose the Committee proposes "that three quarters of a million mothers and children under five be put immediately into the large country houses in safe areas, which must be requisitioned at once for this purpose." For a further one and a quarter million children, new buildings are essential.

"The building programme should be carried out as a proper and necessary part of the war effort, and . . . an adequate quota of materials and labour must be made available by the Government." In order to make this feasible in wartime, the suggested building programme avoids, by the constructional methods devised, the use of imported materials, those required for urgent war purposes, and the use of skilled site labour. The programme is to be carried out in three stages : (1) adaptation of existing buildings; (2) construction of minimum extra sleeping and feeding accommodation for all the evacuees; and (3) the building of crèches, day nursery schools, and living units for the staff. It is estimated that "with present prices the average cost per head for the complete three stages of building might be £90 for evacuees in new buildings, and £10 for those in adapted country houses. The average cost per evacuee would thus be £50-£70, and the total cost for the 2,000,000 evacuees covered by this report would be £100-£140 million for the full three-stage programme."

New methods are advanced to solve new problems. A "Structural Plan Unit" is recommended as the basis of standardisation which would result in economy, ease of organisation, and speed of erection, while at the same time allowing flexibility for essential variations in the planning of each building type. The chief structural problem in wartime, caused by the exclusion of materials, such as steel, normally used to resist tensile stresses, is the construction of the roof, and two methods are proposed to overcome the difficulty : (1) the self-centring block arch, and (2) pre-fabricated plaster arch and beam construction.

(1) No centring of any kind, steel reinforcement or timber is needed, the method depending entirely on the shape and accuracy of the blocks. The system would be feasible for spans up to 20 ft. Concrete blocks give some protection against blast and bomb splinters. A similar method was worked out recently by the Building Research Station and is described in their Wartime Bulletin No. 6 (H.M. Stationery Office).

(2) The arch and beam construction consists of plaster vaults, like part of a cylinder supported at four points only. A number of such vaults placed in series allow much greater freedom in planning than method (1). A specimen vault of 7-ft. span was constructed of gypsum plaster only 1 inch thick, and it was found that a heavy man could walk about on top of it. Reinforcements would be of road splines or other fibres.

Both those methods are illustrated in the report by constructional diagrams, with examples of their use in several building types. The report concludes with five building designs illustrating the main recommendations. These are : Suggested developments round an existing country house; family cottages for two mothers with children; mothers' and babies' hostel; day crèche; and a residential nursery school.

Copies of this report (which has been submitted to the Ministers of Health, Information and Education) are obtainable from the A.A.S.T.A., 113, High Holborn, W.C.1, price 7d. by post.

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15, North Audley Street, London, W.1.

"Programme for Victory."

UNDER this title the Fabian Society has arranged a series of autumn lectures, to be held at the Central Hall, Westminster, S.W.1, on Thursday evenings at 6 p.m., from October 3 to November 7 inclusive. The lecturers are Harold Laski, Harold Nicolson, J. B. Priestley, W. M. Macmillan, Miss Ellen Wilkinson, and G. D. H. Cole. Particulars are available from 11, Dartmouth-street, S.W.1.

A.R.P SCHEMES

LONDON.

FRIERN BARNET.—A.R.P. Committee of U.D.C. applying for sanction to borrow £12,960, the Council's share of £62,000, the cost of 626 brick shelters to accommodate 30,000 people.

PENGE.—Expenditure of £3,500 on shelters by U.D.C. been sanctioned by M.H.

RICHMOND (SURREY).—T.C. accepted tender of £1,364 for communal shelters to accommodate 744 persons residing in Duncan-rd., Salisbury-rd., Cambridge-cottages, Watcombe-cottages, Evelyn-gardens, Princes-st., Ruskin-av., and Defoe-av. Another tender accepted is for £3,364 for 208 pit-type domestic shelters to accommodate 1,464 persons.

PROVINCIAL.

ADWICK-LE-STREET.—U.D.C. propose 65 communal shelters in Woodlands area. Plans by W. S. Ellis, S.

BANGOR (CO. DOWN).—26 shelters to be erected by T.C., at £3,457.

BARROW-ON-SOAR. — R.D.C. propose domestic communal shelters in six districts.

BAWTRY.—West Riding C.C. propose shelters at elementary schools.

BEDWORTH.—U.D.C. to erect domestic communal shelters at Bedworth and Bulkington.

BEVERLEY.—R.D.C. placed contracts with P. R. Gillatt, South Cave, and Ainsty Building Estates, York, for shelters in various parts of district. Plans by E. and S., 36, Market-pl.

BLACKBURN.—T.C. received sanction for 528 domestic and 30 communal and public shelters. Contracts placed with James Taylor and Sons, A. Riding and J. R. and E. Hodgson, all of Blackburn. Plans by W. Pickstone, B.E. and S.

BRIERLEY HILL.—U.D.C. propose public communal shelters.

CANNOCK.—U.D.C. propose communal shelters and strengthening of basements for public shelters in Wimberry and Chadsmoor.

DERWENT.—R.D.C. to erect shelters at Fulford, Heslington and Barlby.

DEWSBURY.—T.C. received sanction for 147 public shelters at Ravensthorpe and Earlesheaton and Westborough; 25, West Town; 13, Thornhill Lees; 39, Dewsbury; to accommodate 8,036 persons. Plans by M. H. Forward, Borough Architect. Cost, £15,136.

DONCASTER.—Public Health Committee propose shelter, Wood-st. clinic. Plans by F. O. Kirby, B.E., 2, Priory-pl.

ECCLES.—T.C. to erect communal shelters, Ellesmere-st., Lewis-st., etc. Plans by T. Elce, B.E.

FELLING-ON-TYNE. — U.D.C. to build shelter at Council Offices.—U.D.C. received consent to build further domestic shelters, at £4,400.—For conversion of premises into first-aid post for Durham C.C. Contract placed with T. A. Brown and Son, Felling-on-Tyne.

GOLBORNE.—U.D.C. propose 30 additional shelter accommodation for 1,440. Plans by A. Clough, S., Leigh-rd., Lowton St. Mary's, near Warrington.

HAZEL GROVE AND BRAMHALL.—U.D.C. propose communal shelters. Plans by J. F. Andrews, S.

HEBBURN-ON-TYNE.—For drainage of 100 Anderson shelters for U.D.C. work being carried out by direct labour, at £200.—U.D.C. to build shelter at hospital for staff.

HYDE.—T.C. to erect 70 additional shelters. Plans by J. H. Ward, B.S.

JARROW.—T.C. decided to build five more public shelters and considerable number of domestic shelters. Work will be done by direct labour. Plans by J. S. Weir, B.E., Town Hall.

LARNE.—For four additional public shelters for U.D.C., contract placed with Duffin, Larne, at £482.

LISBURN.—For 28 public shelters for U.D.C. contract placed with J. Graham, Dromore, Co. Down, £4,972.

LURGAN.—For 14 public shelters contract placed with Wm. Callaghan and Son, Maralin.

MACCLESFIELD.—T.C. to provide immediately 267 communal domestic shelters in town, at £30,705. Price been agreed between the local Builders' Federation, the Regional Technical Adviser and the Borough Architect, Mr. M. B. Tetlow.

MALTON.—U.D.C. to erect public shelters at Highfield-rd. and Peasey Hill.

MARKET DRAYTON. — U.D.C. propose additional public shelters.

MIDDLESBROUGH. — E.C. to provide further shelters at schools to plans by P. Mellor, Education Architect.

NEWCASTLE.—J. Watson Taylor and Son, Union-bldgs., St. John-st., architects for basement shelter at premises of Messrs. Turner, Pink-la.

NEWCASTLE-ON-TYNE. — S. and J. Stephenson and Gillis, 2, Saville-pl., prepared plans for shelter in Claremont-rd. for Northern Coachbuilders, Ltd.

NORTHUMBERLAND. — C.C. accepted tenders of Messrs. Pierce, Dunbar, Scotland, and of J. Urpeth, Gibsons-bldgs., Front-st., Bedlington, for shelters.

NORTHWICH. — R.D.C. propose additional public shelters. Plans by J. Birtwistle, S.

SCARBOROUGH.—T.C. prepared scheme for domestic shelters and for conversion of basements of premises for public shelters, at £80,000. Plans by H. V. Overfield, B.E.

STAFFORD.—T.C. propose domestic communal shelters. Plans by T. Plant, B.S.

STAVELEY.—Houfton and Kington, architects, Furnival-chambs., Market-pl., Chesterfield, preparing plans for 77 shelters in Middlecroft area for U.D.C.—Greenwood's (Mansfield), Ltd., builders, Wood-st., Mansfield, received contract at £1,496 for 19 communal shelters at Barrow Hill, Hollingwood, and Millgreen, for U.D.C. Plans by A. W. McGaw, S.

STOKE-ON-TRENT.—T.C. to erect additional shelters in northern area. Plans by J. R. Piggott, Borough Architect.

STRABANE.—For three public shelters for U.D.C. contract placed with J. Campbell, Strabane, at £344 10s.

SUNDERLAND.—R.D.C. to ask Government to sanction shelters. Plans by C. Emmerson, S.

SWANSEA.—C.B. to convert part of basement of Libanus chapel, Cwmbwria, into public shelter, and same to portion of warehouse in Orange-ct.—Public shelters to be erected in Belle Vue-st.; adjoining Maxime cinema, Sketty; at Clarence-court; Ebenezer-st.; Morris-la.; St. Thomas; Neath-rd., Landore; two in Pentrechwyth-rd.; Hosea-row, Landore; at arches between Sloane-st. and Paxton-st.

THURROCK.—U.D.C. placed contract with W. E. Walsham, Ltd., 64, Whitehall-la., Grays, for depot and cleansing station, at £3,626. Plans by G. F. Andrassy, E. and S.

THORNE.—R.D.C. to erect 1,500 domestic communal shelters. Plans by H. Plews, S.

UTTOXETER.—U.D.C. to erect additional domestic communal shelters, each to accommodate 48 persons.

WARWICKSHIRE.—C.C. to erect public shelters in eight districts. Plans by A. C. Bunch, County Architect, Warwick.

WIGAN.—T.C. to erect public shelters in Miry-la. and Wallgate area. Plans by B. Lyon, B.E.

WILLENHALL.—U.D.C. propose domestic and public shelters. Plans by N. D. Martin, B.E.

WORKSOP.—Contracts placed by R.D.C. with T. Salway, Avenue-dr., Blyth, near Rotherham, for 7 shelters at Bircotes and with F. J. Rowsell and Son for 4 shelters at Langold. Plans by W. Flint, S.

WORSLEY.—U.D.C. to erect domestic communal shelters at Boothstown, etc. Plans by L. T. Broom, S.

YORK.—T.C. proposes shelter at Festival Concert Rooms, Museum-st., at £775. Plans by C. J. Minter, City E.

SCOTTISH.

GLASGOW.—A.R.P. Committee of T.C. approved shelters adjoining Corporation clinics in Wellshor-rd., Tollcross; Craid-st., Parkhead; and Orr-st., Mile-end.

GLASGOW.—Plans prepared for shelters for Coopers Stores, Ltd., Jamaica-st. to Dixon-st. Plans by J. Bunyan, Herbert-st. Contractors: W. T. Morgan, Glasgow, and Redpath, Brown and Co., Ltd., Glasgow.

GLASGOW.—Plans for shelters at Alderman-rd., Balintyre-st., Aucherhill-rd., Killin-st., Tollcross-rd., Amulree-st., and Carntyne-rd. prepared by T. Somers, City E.

MONTROSE.—Managers of Royal Infirmary received Dept. of Health approval to plan prepared by W. M. Patrick, infirmary architect, for decontamination centre.

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Converted Home-grown Hardwoods for National Stock.

The Timber Control of the Ministry of Supply makes the following announcement:—

The shortage of timber supplies has hitherto made it possible for the Home-grown Trade to sell practically the whole of its output in advance for essential usages. With the gradual expansion of production, however, this position cannot be expected to continue—nor, in fact, would it be desirable, as only when a stock of home-grown timber has been built up will the Control be justified in substantially reducing imports (especially as, in the case of hardwoods, dry material is usually required for Government contracts).

In order, therefore, that all firms engaged in the conversion of home-grown timber may be in a position to produce to their maximum capacity and that the portion of their output which exceeds immediate requirements may be conserved for purposes of national importance, the Timber Control is prepared to enter into contracts for the purchase of home-grown timber for national stock.

Contracts can be entered into for a period of six months, and the present specifications cover square-edged ash, oak, beech and elm. Any firm desiring to participate in this scheme should write for further particulars and form of tender to Timber Control, Department III, Branch 6, Clifton Down Hotel, Bristol, 8.

A similar scheme is also available to those firms who are experiencing difficulty in the disposal of their entire production of converted home-grown softwoods.

CONTRACTS OPEN

It should be noted that contracts with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders: a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A.) for A.R.I.B.A.; B. of E for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A.; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor; T.C. for Town Clerk and Town Council; and U.D.C for Urban District Council.

BUILDING.

SEPTEMBER 23.

Bicester U.D.C.—Alteration of building for use as mortuary. S., Council Offices, The Causeway.

Hemel Hempstead E.C.—Surface shelters with brick walls and concrete roofs at 11 schools for 1,540 children. B.S., Market-sq. Dep. £1 1s.

SEPTEMBER 30.

Westmorland C.C. — Laundry improvements, Kirkby Stephen Institution. H. B. Greenwood, Clerk, County Hall, Kendal.

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

SEPTEMBER 20.

Blackpool C.B.—External painting of certain Corporation properties. B.S.

SEPTEMBER 23.

Sunderland C.B. — Asphalting main entrance doors, etc., at sub-fire station, Fulwell. B.E.

Wharfedale Union Joint Hospital Board.—External and internal painting and decoration at isolation hospital, Menston, and Smallpox Hospital, Guiseley. Harry Riding, Supt. Engineer, Isolation Hospital, Menston, near Leeds.

SEPTEMBER 27.

Burnley C.B.—Heating engineer's work required at North Bridge Mill. B.E. and S. Dep. £1 1s.

SEPTEMBER 30.

***Metropolitan Water Board.**—Heating installation at Hampton. Chief E., Rosebery-av., E.C.1.

NO DATE.

Plymouth T.C.—Repairs and reconstruction at Ford House, Swilly. Housing Estates Manager, The Old Guildhall, Whimple-st.

MATERIALS.

SEPTEMBER 23.

Hemsworth R.D.C.—Metal windows for fire and ambulance station at Moorthorpe, South Kirkby. S. Price, E. and S.

SEPTEMBER 30.

Mersey Railway Co.—Builders' materials. R. Varley, General Manager and Engineer, Central Station, Birkenhead.

ENGINEERING, IRON AND STEEL.

OCTOBER 19.

North Cork Board of Health and Public Assistance.—Millstreet water supply scheme. D. C. Murphy, Sec., County Hospital, Mallow. Dep. £20.

ROAD, SEWERAGE AND WATER WORKS.

SEPTEMBER 23.

Haverfordwest T.C.—Laying drains and water main at Winch-la. Cattle Mart. R. G. Henderson, B.S.

Mountain Ash U.D.C.—Renewal of water mains at Cefnpennar. Arthur Williams, S.

Wicklow Board of Health and Public Assistance.—Sewerage scheme at Tinahely. P. Caffrey, Board's Engineer, Aughrim. Dep. £10.

SEPTEMBER 27.

Roscommon Board of Health.—Improvements to Boyle water supply. P. H. McCarthy and Son, consulting engineers, 26, Lower Leeson-st., Dublin. Dep. £5 5s.

SEPTEMBER 30.

Wexford T.C.—Improvements to waterworks. Delap and Waller, consulting engineers, 16, Molesworth-st., Dublin. Dep. £10 10s.

OFFICIAL NOTIFICATIONS

Renewal of Motor Vehicle Licences.

The Minister of Transport appeals to motorists to make early application for the renewal of motor vehicle licences which expire at the end of September, in order to avoid congestion in local taxation offices caused by late applications. Applications for such licences may be made as from September 17, and motorists are requested to study carefully the instructions on pages 1 and 5 of the Registration Book and on the renewal form R.F. 1A and to ensure that their applications are in order. Evidence of insurance against third-party risks must be produced; this evidence usually takes the form of a certificate of insurance or a certificate of security. Renewal forms are obtainable from any Money Order Post Office.

Fires in Unattended Buildings.

The danger arising from outbreaks of fire in unattended buildings is stressed in an urgent warning issued by the Ministry of Home Security. It is pointed out that if an outbreak occurs in such a building the fire may not only involve a serious call upon the local fire services through not having been detected at an early stage, but may also serve as a beacon to raiding aircraft. Even a single person in the building could at least summon the fire brigade at once, even if he cannot extinguish the fire before it has got hold. The main classes of premises to be considered are factory and warehouse buildings and timber yards. Occupiers of all such premises are strongly urged to secure that at least one person is always on the premises for the purposes of giving an alarm in case of fire and also to provide simple fire-fighting equipment for use until the fire brigade arrives, if they have not already done so.

FEDERATED EMPLOYERS'
Insurance Association Ltd.
(non-tariff)
Head Office:
8, King St., Manchester
London Office:
23, Lawrence Lane, Cheapside, London, E.C.2
All Classes of Insurance Transacted
(Except Life and Marine)
The Leading Office for
Contract Guarantee Bonds

CURRENT AND PROPOSED BUILDING WORK*

Bangor.—Directors of Anglesey and Carnarvonshire Farmers' Dairies, Ltd., Snowden-bldgs., propose dairy.

Belfast.—Plans approved by City S. for additions to factory for Blackstaff Flax Spinning and Weaving Co., Ltd.; additions to parochial hall for St. Aidan's Parish Select Vestry.

Chesterfield.—Arrangements completed for extension of "Kit Bag Club" on Low Pavement.

Doncaster.—T.C. approved: Rebuilding "Scarborough Arms" hotel, Clevelandst. and Spring-gdns., Whitworth, Son and Nephew, Ltd., brewers, Wath-on-Dearne.

Gateshead.—Plans approved for canteen and kitchen for Armstrong Whitworth and Co., Ltd.; canteen, bk. Abbot-st., for Crawhall and Sons; and alterations to "Prince of Wales" hotel, Princess-st., for Robert Deuchar, Ltd., Newcastle-on-Tyne, architects, Page, Son and Bradbury, 75, King-st., South Shields.

Hebburn-on-Tyne.—Tenders to be obtained by U.D.C. for painting council offices and 197 houses.

Hereford.—T.C. approved: Works extensions, Painter Bros., Ltd.

Leeds.—Plans prepared for first section of new church for Building Committee (chairman, Archdeacon of Leeds, Ven. H. Lovell Clarke).

London.—M.W.B. approved minor repairs No. 4 reservoir at £330 and at No. 3 reservoir at £160.

Manchester.—Plans approved by T.C.; Foundry, blacksmith's shop and smithy, to works, G. Garner and Sons, Ltd.; works additions, Cooke and Ferguson, Ltd.; conversion of billiards hall to skating rink, A. Thompson, C. A. Broadhead, architect, Devonshire House, Moorgate-st., Rotherham; office canteen and conveniences, to works, R. Johnson and Nephew, Ltd.; reconstruction after fire of warehouse, D. Jones and Co., Ltd., T. Wainwright and Son, architects, 11, Lord-st., Liverpool; decontamination and sleeping room to works, Small and Parkes, Ltd.; H. S. Fairhurst and Son, architects, 55, Brown-st.: additions to convent, Sisters of Charity of St. Vincent de Paul, W. Eilis, architect, Union Bank-chas., Hardshaw-st., St. Helens; works additions, W. Riley, Ltd.; works extensions, H. S. Fairhurst and Son., architects, 55, Brown-st.: works additions, Lindsay and Williams, Ltd.: Wrathmell and Blackshaw, architects, St. Peter's-sq., Stockport; extensions, Lancashire Coachways, Ltd., G. Bullimore, architect, 5, Cannon-pl., Hampstead, N.W.3; office additions and conveniences, to works, G.P.A. (Tools Gauges), Ltd., Brotherton and Wise, architects, 39, Oxford-st.: houses, J. Saxon, builder, 508, Victoria-av., Roberts, Wood and Elder, architects, 26, King-st.; church hall, Rev. Luke Farrelly, P.P. Church of St. John Bosco, The Presbytery, Charleston-rd.

Matlock.—U.D.C. approved alterations to Sydnope Hall, for Trustees.

Norham and Islandshires. — R.D.C. approved scheme by Gray and Paterson, Berwick, for improvements, Velvet Hall Farm, at £295.

Northwich.—U.D.C. to erect rest room and canteen, rear of fire station.

Swansea.—C.B. recommend sewer and culvert enlargement for emergency hospital scheme, at £2,047 and £130, respectively.

Plans passed for temporary building: Office, etc., for Wm. Brown; Club room, for Welsh Junior A.F.C.; mission hall, Bridge-st., D. J. Curtis; pavilion, Fairfield-ter., J. Dawson; workshop, G. J. Robins and Son; pavilion, Ynystawe Cricket Club; rifle range, Swansea Rifle Club; dressing rooms, Swansea A.F. Club; grand stand, Swansea A.F. Club; grand stand and extensions, Swansea A.F. Club; workshop, Wm. Williams and Son: pavilion, Morriston Tennis Club; pavilion, Llansamlet Tennis Club.

Wirral.—Y.M.C.A. Trustees propose hall and canteen. Plans by H. Thomas, 36, Dale-st., Liverpool. Estimated cost, £3,000.

* See also List of Contracts Open.

***** In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st JUNE, 1940

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.
Aberavon	1/9	1/4½
Aberdare	1/9	1/4½
Abergavenny	1/9	1/4½
Abingdon	1/7½	1/3
Accrington	1/9	1/4½
Aldeburgh	1/5½	1/1½
Aldershot	1/7½	1/3
Alfreton	1/9	1/4½
Alnwick	1/8½	1/3½
Altrincham	1/9	1/4½
Amble	1/8½	1/3½
Amersham	1/7½	1/3
Ammanford	1/9	1/4½
Andover	1/7	1/2½
Ardingley	1/7	1/2½
Arundel	1/7	1/2½
Ascot	1/7	1/2½
Ashby-de-la-Zouch	1/9	1/4½
Ashford (Kent)	1/7	1/2½
Ashford (Middlesex)	1/9	1/4½
Ashington	1/8½	1/3½
Ashtead	1/9	1/4½
Ashton-under-Lyne	1/9	1/4½
Aylesbury	1/7	1/2½
Aylsham	1/6	1/2
Bagshot	1/7	1/2½
Banbury	1/7	1/2½
Barnsley	1/9	1/4½
Barnstaple	1/7	1/2½
Barrow-in-Furness	1/9	1/4½
Barry	1/9	1/4½
Basingstoke	1/7	1/2½
Bath	1/8½	1/3½
Batley	1/9	1/4½
Beaconsfield	1/7½	1/3
Beccles	1/5½	1/1½
Bedford	1/8½	1/3½
Berkhamsted	1/7	1/2½
Berwick	1/8½	1/3½
Beverley	1/9	1/4½
Bexhill-on-Sea	1/7½	1/3
Bideford	1/7	1/2½
Biggleswade	1/7	1/2½
Billericay	1/6½	1/2½
Birchington	1/7	1/2½
Birkenhead	‡§1/11	¶
Birmingham†	1/9	1/4½
Bishop Auckland	1/9	1/4½
Bishops Stortford	1/8	1/3½
Blackburn	1/9	1/4½
Blackpool	1/9	1/4½
Blyth	1/9	1/4½
Bognor Regis	1/7	1/2½
Bolton	1/9	1/4½
Bournemouth	1/8	1/3½
Bracknell	1/7	1/2½
Bradford	1/9	1/4½
Bradford-on-Avon	1/6	1/2
Braintree	1/7	1/2½
Brentwood	1/8½	1/3½
Bridgwater	1/7½	1/3
Bridlington	1/8½	1/3½
Brighouse	1/9	1/4½
Brighton	1/8	1/3½
Bristol	1/9	1/4½
Broadstairs	1/7	1/2½
Bromsgrove	1/8½	1/3½
Buckley	1/9	1/4½
Bungay	1/5	1/1½
Burnham-on-Crouch	1/5½	1/1½
Burnley	1/9	1/4½
Burslem	1/9	1/4½
Burton-on-Trent	1/9	1/4½
Bury	1/9	1/4½
Bury St. Edmunds	1/6½	1/2½
Buxton	1/8½	1/3½
Byfleet	1/7½	1/3
Cambridge	1/9	1/4½
Canterbury	1/7	1/2½
Cardiff	1/9	1/4½
Carlisle	1/9	1/4½
Carnforth	1/9	1/4½
Castleford	1/9	1/4½
Caterham	1/9	1/4½
Chard	1/6	1/2
Chatham	1/8	1/3½
Chelmsford	1/8½	1/3½
Cheltenham	1/8	1/3½
Chepstow	1/8½	1/3½
Chertsey	1/8	1/3½
Chester	1/9	1/4½
Chesterfield	1/9	1/4½
Chichester	1/7	1/2½
Chorley	1/9	1/4½
Cirencester	1/6½	1/2½
Clacton	1/7	1/2½
Cleveleys	1/9	1/4½
Clitheroe	1/9	1/4½
Cobham (Surrey)	1/8	1/3½
Colchester	1/8½	1/3½
Colwyn Bay	1/8	1/3½
Congleton	1/8½	1/3½
Coventry	1/9	1/4½
Cranbrook	1/7	1/2½
Cranleigh	1/7	1/2½
Crawley	1/7	1/2½
Crewe	1/8½	1/3½
Cromer	1/6	1/2
Crowborough	1/7	1/2½
Cuckfield	1/7	1/2½
Darlington	1/9	1/4½
Darwen	1/9	1/4½
Daventry	1/7½	1/3
Deal	1/7	1/2½
Denbigh	1/8	1/3½
Derby	1/9	1/4½
Devizes	1/6	1/2
Dewsbury	1/9	1/4½
Didcot	1/7	1/2½
Diss	1/5½	1/1½
Doncaster	1/9	1/4½
Dorchester	1/6½	1/2½
Dorking	1/7½	1/3
Dover	1/7	1/2½
Dovercourt	1/7	1/2½
Driffield	1/7½	1/3
Droitwich	1/8½	1/3½
Dudley	1/9	1/4½
Dunstable	1/7½	1/3
Durham City	1/9	1/4½
Eastbourne	1/8	1/3½
E. Glam. (Mon. Val.)	1/9	1/4½
East Grinstead	1/7	1/2½
Edenbridge	1/7	1/2½
Ely	1/6	1/2
Epping	1/9	1/4½
Exeter	1/8½	1/3½
Exmouth	1/7½	1/3
Fakenham	1/6	1/2
Falmouth	1/7½	1/3
Fareham	1/8	1/3½
Faversham	1/7	1/2½
Felixstowe	1/8	1/3½
Filey	1/7½	1/3
Fleetwood	1/9	1/4½
Flint	1/9	1/4½
Folkestone	1/7	1/2½
Frinton-on-Sea	1/7	1/2½
Frome	1/6	1/2
Gainsborough	1/8	1/3½
Gateshead	1/9	1/4½
Gillingham (Kent)	1/8	1/3½
Glossop	1/9	1/4½
Gloucester	1/8½	1/3½
Godalming	1/7	1/2½
Goole	1/9	1/4½
Gosport	1/8½	1/3½
Grantham	1/8	1/3½
Gravesend	1/8½	1/3½
Great Yarmouth	1/7	1/2½
Grimsby	1/9	1/4½
Guildford	1/7	1/2½
Guilsborough	1/7½	1/3
Halifax	1/9	1/4½
Hanley	1/9	1/4½
Harpenden	1/8	1/3½
Harrogate	1/9	1/4½
Hartlepools	1/9	1/4½
Harwich	1/7	1/2½
Haslemere	1/7	1/2½
Hastings	1/7	1/2½
Hatfield	1/8½	1/3½
Haywards Heath	1/7	1/2½
Hednesford	1/8½	1/3½
Hemel Hempstead	1/8	1/3½
Henley-on-Thames	1/7	1/2½
Hereford	1/7	1/2½
Herne Bay	1/7	1/2½
Hertford	1/8½	1/3½
Heysham	1/9	1/4½
Hitchin	1/8	1/3½
Hoddesdon	1/8½	1/3½
Holt (Norfolk)	1/5½	1/1½
Horley	1/7	1/2½
Horsham	1/7	1/2½
Horwich	1/9	1/4½
Huddersfield	1/9	1/4½
Hull	1/9	1/4½
Hunstanton	1/6	1/2
Huntingdon	1/6½	1/2½
Ilfracombe	1/7	1/2½
Ingatestone	1/7½	1/3
Ipswich	1/8½	1/3½
Isle of Thanet	1/7	1/2½
Isle of Wight	1/6½	1/2½
Keighley	1/9	1/4½
Kenilworth	1/9	1/4½
Kettering	1/9	1/4½
Kidderminster	1/8½	1/3½
King's Lynn	1/7	1/2½
Kirkham	1/9	1/4½
Knowle	1/8½	1/3½
Lancaster	1/9	1/4½
Leamington	1/9	1/4½
Leatherhead	1/8	1/3½
Leeds	1/9	1/4½
Leicester	1/9	1/4½
Leighton Buzzard	1/6	1/2
Letchworth	1/8	1/3½
Lewes	1/7	1/2½
Lichfield	1/8	1/3½
Lincoln	1/9	1/4½
Littlehampton	1/7	1/2½
Liverpool	‡§1/11	¶
Llandudno	1/8	1/3½
Llanelly	1/9	1/4½
London—		
12m. radius	*1/10½	1/5½
12-15 m. radius	*1/10	1/5
Long Eaton	1/9	1/4½
Longton	1/9	1/4½
Loughborough	1/9	1/4½
Louth	1/7½	1/3
Lowestoft	1/7	1/2½
Luton	1/8½	1/3½
Macclesfield	1/8½	1/3½
Maidenhead	1/8	1/3½
Maidstone	1/7½	1/3
Malvern	1/7½	1/3
Manchester	1/9	1/4½
Manningtree	1/6	1/2
Mansfield	1/9	1/4½
March	1/6	1/2
Margate	1/7	1/2½
Market Harborough	1/8	1/3½
Matlock	1/7½	1/3
Melton Constable	1/5½	1/1½
Melton Mowbray	1/8	1/3½
Merthyr	1/9	1/4½
Middlesbrough	1/9	1/4½
Middleton	1/9	1/4½
Middlewich	1/8½	1/3½
Milford Haven	1/7½	1/3
Morecambe	1/9	1/4½
Morley	1/9	1/4½
Mundesley	1/6	1/2
Nantwich	1/8½	1/3½
Nelson	1/9	1/4½
Newark-on-Trent	1/8½	1/3½
Newbury	1/7	1/2½
Newcastle-on-Tyne	1/9	1/4½
Newcastle-u.-Lyme	1/9	1/4½
New Forest	1/7	1/2½
Newmarket	1/7	1/2½
Newport, Mon.	1/9	1/4½
Newport Pagnell	1/7	1/2½
Northampton	1/9	1/4½
Norwich	1/9	1/4½
Nottingham	1/9	1/4½
Nuneaton	1/9	1/4½
Oakham	1/7½	1/3
Oldham	1/9	1/4½
Ormskirk	1/9	1/4½
Oxford	1/8½	1/3½
Oxted	1/7½	1/3
Paignton	1/8½	1/3½
Peterborough	1/8½	1/3½
Plymouth	1/9	1/4½
Pontefract	1/9	1/4½
Pontypridd	1/9	1/4½
Port Talbot	1/9	1/4½
Portsmouth	1/8½	1/3½
Preston	1/9	1/4½
Pulborough	1/7	1/2½
Ramsgate	1/7	1/2½
Reading	1/8½	1/3½
Redditch	1/8½	1/3½
Redhill	1/7½	1/3
Ripon	1/7½	1/3
Rochdale	1/9	1/4½
Rochester	1/8	1/3½
Rugby	1/9	1/4½
Saffron Walden	1/6	1/2
St. Albans	1/8½	1/3½
St. Helens	1/9	1/4½
St. Neots	1/6½	1/2½
Salisbury City	1/6½	1/2½
Salisbury Plain	1/8	1/3½
Sawbridgeworth	1/7½	1/3
Saxmundham	1/5½	1/1½
Scarborough	1/8½	1/3½
Scunthorpe	1/9	1/4½
Selby	1/9	1/4½
Sevenoaks	1/7½	1/3
Sheerness	1/7	1/2½
Sheffield	1/9	1/4½
Shipley	1/9	1/4½
Shoeburyness	1/8½	1/3½
Shoreham	1/8	1/3½
Shrewsbury	1/8½	1/3½
Sittingbourne	1/7	1/2½
Skegness	1/8	1/3½
Sleaford	1/7½	1/3
Slough	1/8	1/3½
Southampton	1/8½	1/3½
Southend-on-Sea	1/8½	1/3½
Southport	1/9	1/4½
South Shields	1/9	1/4½
Spalding	1/7	1/2½
Stafford	1/8½	1/3½
Staines	1/8	1/3½
Stamford	1/8	1/3½
Stevenage	1/8	1/3½
Stockport	1/9	1/4½
Stockton-on-Tees	1/9	1/4½
Stoke-on-Trent	1/9	1/4½
Stourbridge	1/9	1/4½
Stourport	1/8½	1/3½
Stowmarket	1/6	1/2
Stratford-on-Avon	1/8	1/3½
Stroud	1/8	1/3½
Sunderland	1/9	1/4½
Sutton Coldfield	1/9	1/4½
Swaffham	1/5½	1/1½
Swanage	1/7	1/2½
Swansea	1/9	1/4½
Swindon	1/7½	1/3
Tamworth	1/8½	1/3½
Taunton	1/7½	1/3
Tenterden	1/7	1/2½
Thames Haven	1/9	1/4½
Thetford	1/6½	1/2½
Thorpe Bay	1/8½	1/3½
Todmorden	1/9	1/4½
Tonbridge	1/7½	1/3
Torquay	1/8½	1/3½
Totnes	1/7	1/2½
Trowbridge	1/6	1/2
Truro	1/6½	1/2½
Tunbridge Wells	1/7½	1/3
Uppingham	1/7½	1/3
Uttoxeter	1/7½	1/3
Wakefield	1/9	1/4½
Walsall	1/9	1/4½
Walsden	1/9	1/4½
Walton-on-Naze	1/7	1/2½
Ware	1/8½	1/3½
Warminster	1/6	1/2
Warrington	1/9	1/4½
Warwick	1/9	1/4½
Wellingborough	1/8½	1/3½
Welwyn	1/8	1/3½
Welwyn Gar. City	1/9	1/4½
Wells (Norfolk)	1/5½	1/1½
West Bromwich	1/9	1/4½
Westcliff-on-Sea	1/8½	1/3½
Weston-super-Mare	1/8	1/3½
Weybridge	1/8	1/3½
Weymouth	1/7	1/2½
Whitby	1/8	1/3½
Whitstable	1/7	1/2½
Widnes	1/9	1/4½
Wigan	1/9	1/4½
Wigton	1/7½	1/3
Willington	1/9	1/4½
Wilmslow	1/9	1/4½
Winchester	1/7½	1/3
Windermere	1/7½	1/3
Windsor	1/8	1/3½
Wisbech	1/6½	1/2½
Witham	1/7	1/2½
Woking	1/7½	1/3
Wokingham	1/7	1/2½
Wolverhampton	1/9	1/4½
Woodbridge	1/6½	1/2½
Worcester	1/8½	1/3½
Workington	1/7½	1/3
Worksop	1/8½	1/3½
Worthing	1/7	1/2½
Wrexham	1/8½	1/3½
Wroxham	1/6½	1/2½
Wycombe	1/8	1/3½
Wymondham	1/6	1/2
Yeovil	1/7½	1/3
York	1/9	1/4½

* **Painters 1d. less than other Craftsmen.** † **Plus 2d. per working day.** ‡ **Plasterers 1/11½.**

¶ **Tradesman's Labourers 1/5½. Navvies and General Labourers 1/4½.**

§ **Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.**

For Building Trade Wages in Scotland, see page 298.

PRICES CURRENT OF MATERIALS *

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry. The prices for soft woods are for cash on delivery, and are subject to adjustment when the increased price of £22 per standard for national released stocks is finally fixed. At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads. £ s. d.
Best Stocks 4 18 0
Second Hard Stocks 4 11 0

Per 1,000. Delivered at London Goods Stations.

2⅝ in. Phorpres. A discount of 6d. per 1,000 only monthly account.	King's Cross Station per 1,000. s. d.	To sites in W.C. District. per 1,000 s. d.
Pressed bricks	51 0	57 0
Cellular bricks	51 0	57 0
Keyed bricks	53 0	59 0
Cellular Keyed bricks	53 0	59 0
Rustic bricks	71 0	77 0
Cellular Rustic bricks	71 0	77 0
Single Bullnose	71 0	77 0
White bricks	71 0	77 0

White Midhurst Facing Bricks (delivered London site) 3 12 6
Best blue Pressed Staffs. (London Stns.). ... 8 18 0
Do. Bullnose (London Stns.) 9 8 0
Blue Wire Cuts (London Stns.) 7 15 6
Best Stourbridge Fire Brick (London Stns.):—
2½ in. ..... 8 0 0 3 in. 9 15 0

GLAZED BRICKS. (London Stns.)

Best White Ivory and Salt Glazed Stretcher.	26 0 0	D'ble Str'tch'rs .. D'ble Headers ..	34 10 0 31 10 0
Headers	25 10 0	One side & two ends	35 10 0
Quoins, Bullnose and 4½in. Flats	32 10 0	Two sides & one end Splays and Squints	36 10 0 34 0 0

Second Quality, £2 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

2" per yd. sup.	2 3	3" per yd. sup.	2 9
2½" " "	2 6	4" " "	3 1

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½" " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

SAND.

Thames Ballast	7	9 per yd.	delivered 2 miles radius Paddington.
Pit Ballast	7	3 " "	
Pit Sand	9	9 " "	
Washed Sand	10	9 " "	
¾ in. Shingle	8	0 " "	
¾in. Broken Brick	12	0 " "	
Pan Breeze	8	3 " "	

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area. £ s. d.
4 ton loads and upwards site ..... Per ton 2 4 6
1 ton to 4 tons site 2 7 6
Alongside Vauxhall in 80 ton lots 2 2 0
"Ferrocrete" Rapid Hardening Cement—
4 ton loads and upwards site 2 10 6
1 ton to 4 tons site 2 13 6
Alongside Vauxhall in 80 ton lots 2 8 0
Stored in Reserved Bins at works. 1/6 per ton extra.
"Aquacrete" Water Repellent, "Blue Circle" cement, 30/- per ton extra or ordinary "Blue Circle" prices.
"Colorcrete" Nos. 1 and 2. Coloured Rapid Hardening Portland Cement 3 14 6
"Colorcrete" not rapid hardening, according to colour, from £7 to £15 10s. per ton.
"Snowcrete" White Portland Cement. 9 5 0
Super Cement (Waterproof). 3 14 6

NOTE.—Paper bags will be charged at the rate of 5/- nett per ton. Jute sacks charged 1s. 9d. nett each and 1/6 nett each allowed if returned to works within two weeks, in good condition.
Carriage will be paid by makers on returned empty jute sacks.
Roman Cement £7 5 Keene's Cement, White £6 10 0
Parian Cement 6 10 " " Pink 6 5 0
Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 12 6	Sirapite, Coarse	4 3 0
" White	4 0 0	" Finish	4 11 0
Pioneer	4 3 0		

Above prices for 4-ton loads and over London Area.

Best Ground Blue Lias Lime	2 15 0	Grey Stone Lime Chalk Lime	2 10 0 2 10 0
Granite Chippings	1 10 0	Hair per cwt.	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.
Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube ..... s. d. 2 11½

BEER STONE—RANDOM BLOCK—
Free on rail at Seaton Station. per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. " 3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube ..... s. d. 4 6
Do. do. delivered on road waggons as above stations, per ft. cube 4 6
White basebed, 3d. per ft. cube extra.
NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.

HOPTON-WOOD STONE—
F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over F.ft.cb. 14 0
Sawn two sides 22 6

HOPTON-WOOD STONE—
Sawn three or four sides 27 9

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.
6 in. sawn two sides landings to sizes (under 30 ft. super) ..... per ft.super 5 6
6 in. rubbed two sides, ditto .... " 6 3
3 in. sawn two sides slabs (random sizes) ..... " 2 7
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) ..... " 1 8½
1¼ in. to 2 in., ditto ..... " 1 4½

HARD YORK—
Delivered at any Goods Station, London.
Scrappled random blocks. ..... per ft. cube 6 10
6 in. sawn two sides landings to sizes (under 40 ft. super) ..... per ft.super 5 7½
6 in. rubbed two sides, ditto .... " 6 9
4 in. sawn two sides slabs (random sizes) ..... " 3 5
3 in. ditto ditto ..... " 2 8
2 in. self-faced random flags ..... Per yd. super 8 9

CAST STONE.

Delivered in London are in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube ..... 10 6 to	0 13 0
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube ..... 12 6 to	0 16 0
Dry Cuba Mahogany, per ft. cube	0 18 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 6
Dry Australian Walnut, per ft. cube	0 19 0
Dry Queensland Silky Oak, per ft. cube	0 12 6
Dry African Mahogany, per ft. cube	0 10 0
Dry African Whitewood, per ft. cube	0 8 0
Dry English Wainscot Oak, per ft. cube	0 16 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. ..... 4 7 0 to	5 10 0

SOFT WOOD.

MERCHANTABLE BRITISH COLUMBIAN PINE.

	Minimum. £ s. d.	Maximum. £ s. d.
Scantlings in imported sizes, 2in. by 3in. to 4in. by 11in.	43 10 0	53 0 0

Having secured the Contract— What about the Steel Scaffolding!

TUBULAR

—S & C—

SCAFFOLDING

For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.

STEPHENS & CARTER LTD.

The British Steel Scaffolding Co.

731-761, HARROW RD., N.W.10.

Telephone No. Ladbroke 1191 (6 lines).

PLANED BOARDS.

PRIME CLEAR BRITISH COLUMBIAN PINE.

	Per standard. £ s. d.
1in. by 11in. } 1in. by 9in. }	67 10 0
	Per square. s. d.
1in. plain edge flooring	53 0
1¼in. ditto	66 6
1in. tongued and grooved	53 0
1¼in. ditto	66 6

MATCHING.

	Per square. s. d.
⅝in.	37 6
¾in.	42 0
1in.	55 0

SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	31 13 6	18 by 10	16 15 0
22 by 12	26 12 0	18 by 9	15 7 6
22 by 11	23 18 6	16 by 10	14 11 6
20 by 12	23 8 0	16 by 8	11 10 0
20 by 10	21 0 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. ..... Per 1,000 f.o.r. London

Best machine-made tiles from Broseley or Staffordshire district.	£4 10 0
Ditto hand-made ditto	5 7 6
Ornamental ditto	5 12 6
Hip and valley tiles (per dozen) { Hand-made	0 9 0
Machine-made	0 8 6

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R.S. Joists, cut and fitted	£19 5 0
Plain Compound Girders.	21 15 0
Stanchions	24 5 0
In Roof Work "	28 15 0

NOTE.—These prices are for standard pieces and no special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	19 15 0	⅝ in. to ½ in.	18 5 0
⅜ in.	18 15 0	⅝ in. to 2¼ in.	17 15 0

WROUGHT TUBES AND FITTINGS.
Deliveries from works.
Deliveries from London stock further 2½% gross.

	Tubes. ½"/6" %	Tubulars. ½"/6" %	Fittings. 10/17 and 19/24 %	Flanges. ½"/2" %	Flanges. 2½"/6" %
Light weight	55½	—	48	51½	58
Heavy weight	48½	48½	40½	41½	50½
Gavl.lightweight	44½	—	39½	40½	49½
Galv.heavyweight	35½	35½	31½	30½	41½

Tubes and tubulars sizes ½"/⅛" inclusive, charged extra of 5% less gross.
Fittings. Figs. 25/34 5% less gross discount.
Terms.—Nett cash end of month following date of invoice. Carriage paid on lots of £10 nett value and over.

C.I. HALF-ROUND GUTTERS—London Prices ex Works.

per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzels.	Stop Ends.
3 in.	1/3½	1/0½	4d.
3½ in.	1/5	1/2½	4d.
4 in.	1/5	1/3½	5½d.
4½ in.	1/6	1/6	6½d.
5 in.	1/9½	1/7½	7½d.

O.G. GUTTERS.

3 in.	1/8½	1/5½	4½d.
3½ in.	1/10½	1/5½	5½d.
4 in.	1/10½	1/6	6½d.
4½ in.	1/11½	1/9	7½d.
5 in.	2/5½	2/-	9d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches. stock angles.
2 in.	1/11½	1/3½	1/11½
2½ in.	2/0½	1/6	2/3½
3 in.	2/5	1/10½	2/9½
3½ in.	2/10½	2/3	3/3
4 in.	3/3½	2/8½	3/11½

NETT PRICES.
Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

	Pipe.	Bends, stock angle	Branches. stock angles
2 in. per yd. in 6 fts.	3/3½	2/3½	2/9½
2½ in. "	3/11½	2/6½	3/6
3 in. "	4/2½	2/9½	4/2½
3½ in. "	4/3½	3/6	4/10½
4 in. "	4/8½	3/11½	5/7½

L.C.C. COATED DRAIN PIPES.—London Prices, ex Stock.

	Pipe.	Bends, stock angles.	Branches. stock angles
3in. per yd. in 9ft. lengths	5/1	5/11½	9/5½
cwt. qr. lbs.			
4 in. " 1 1 20	7/6	6/9	11/10½
5 in. " 1 2 22	9/1	12/2	18/5
6 in. " 2 0 6	10/9	14/0½	23/0

Gaskin for jointing 65/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)

	Per ton basis in London. £ s. d.			£ s. d.
IRON.—Staffordshire Crown, Merchant quality	16 12 6	to	17 17 6	
IRON—Staffordshire Marked Bars	19 10 0	to	21 10 0	
Mild Steel Bars	17 8 6	to	18 18 6	
Mild Steel Hoops	19 2 6	to	19 12 6	
	Ex Merchant's Stock, per ton (two-ton lots).			
Soft Steel Sheets, C.R. and C.A.—	£ s. d.		£ s. d.	
20 gauge	21 10 0	to	23 17 6	
24 gauge	21 15 0	to	23 12 6	
26 gauge	22 10 0	to	24 7 6	
Galvanised Corrugated Sheets, 6 ft. to 9 ft.—				
20 gauge	23 11 3	to	24 16 3	
24 gauge	24 1 3	to	25 6 3	
26 gauge	25 6 3	to	27 1 3	
Galvanised Flat Sheets, C.R. and C.A.—				
20 gauge	25 1 3	to	26 18 9	
24 gauge	25 11 3	to	27 8 9	
26 gauge	26 16 3	to	28 13 9	
	Per ton. £ s. d.		£ s. d.	
Cut Nails, 3 in. and up	23 10 0	to	25 0 0	

ALL NETT.

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	1 1
Strong sheet	,,	1 3
Thin	,,	1 4
Copper nails	,,	1 3
Copper wire	,,	1 3

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
29/- 45/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
40/— 59/- per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
31/- 44/6 75/- 175/- 250/- 396/- per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
42/6 65/- 102/- 195/- 210/- 510/- per doz.

DOUBLE NET BOILER SCREWS.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
7/6 9/- 14/- 24/- 37/6 54/- per doz.

HEAVY CROYDON BALL VALVES.

½ in. ¾ in. 1 in. 1¼ in. 1½ in.
33/6 55/6 85/- 165/- 237/- per doz.

CAPS AND SCREWS.

1¼ in. 1½ in. 2 in. 3 in. 3½ in. 4 in.
9/- 11/- 16/6 29/- 42/- 45/- per doz

BRASS FERRULES OF SLEEVES.

1¼ in. 2 in. 3 in. 3½ in. 4 in.
9/6 11/6 20/6 26/- 37/- per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

1¼ in. 1½ in. 2 in. 3 in.
8 lb. Lead P. .. 17/6 23/- 32/6 66/6 per doz.
8 lb. Lead S. .. 21/6 27/6 39/6 73/- per doz.

SOLDER.—Plumbers, 1/2. Tinmen's, 1/4. Blowpipe, 1/6 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in drums	per gallon	0 5 4
Boiled ,, ,, in drums	,,	0 5 7
Turpentine, in drums (10 gals.)	,,	0 5 3
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks).		61 0 0

Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.

GENUINE WHITE LEAD PAINT "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14 lb. tins) not less than 5-cwt. lots per ton delivered £ 83 s. 10 d.

Red Lead. Dry (packages extra)	per ton	52 0 0
Best Linseed Oil Putty (1 ton lots)	per cwt.	0 17 1½
Size. XD quality	fkn.	0 3 6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	,,	0 16 0
Fine Copal	,,	0 18 0
Pale Copal	,,	1 0 0
Pale Opal Carriage	,,	1 4 0
Best do.	,,	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	,,	0 18 0
Fine Copal Cabinet	,,	1 2 0
Fine Copal Flatting	,,	1 0 0
Hard Drying Oak	,,	0 18 0
Fine Hard Drying Oak	,,	0 19 6
Fine Copal Varnish	,,	1 0 6
Pale do.	,,	1 12 0
Best do.	,,	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Duirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY (O.Q.) AND SELECTED GLAZING QUALITY (S.Q.).

PER FOOT SUPER.

In sizes not exceeding 80 in. long or 48 in. wide or 110 united inches.

	O.Q.	S.Q.
18 oz. in 300 ft. cases	2½d.	2¾d.
24 oz. ,, 200 ft. ,,	3½d.	4d.
26 oz. ,, 200 ft. ,,	3¾d.	4¼d.
32 oz. ,, 200 ft. ,,	5¼d.	6¾d.
24 oz. ,, 300 ft. ,,	3¼d.	3¾d.
26 oz. ,, 300 ft. ,,	3¾d.	4¾d.
32 oz. ,, 300 ft. ,,	5¼d.	6¾d.
18 oz. Obscured Sheet		5¾d.
24 oz. Obscured Sheet		6¾d.
Fluted, 21 oz.		9d.
Enamelled, 18 oz.		5¾d.
,, 24 oz.		6¾d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ¼ in.	5¾d.
Rough cast double rolled, ⅜ in.	6¾d.
Rough cast double rolled, ½ in.	6¾d.
Figured rolled, and Cathedral, white	6¾d.
Figured rolled and Cathedral, tinted	9¾d.
Rolled Sheet	6d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick	0 10½

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Wire Rolled, ¼ in. thick	0 9½
Wired Cast, ¼ in. thick	0 9½
Georgian Wired Cast	0 10
"Calorex" Sheet, 21 oz.	2 6
,, ,, 32 oz.	4 0
,, Cast, ¼ in. thick	0 10
,, ,, 5/16 in. thick	1 0
,, ,, ⅜ in. thick	1 2
Non Actinic Glass, ¼ in. thick	0 9½
,, ,, ,, 5/16 in. thick	1 0
,, ,, ,, ⅜ in. thick	1 2

"VITA" GLASS.

	Per ft. s. d.
"Vita" Plate Glass, about 5/32 thick:	
To 7 ft. super	5 0
Over 7 ft. super	7 6
"Vita" Sheet Glass, about 18/20 oz.	2 0
Cathedral "Vita" Glass:	
¼" thickness	2 0
5/16" ,,	3 0
3/8" Georgian Wired "Vita" Glass	3 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	34 10 0
Pipe in coils	34 0 0
Soil pipe	39 10 0
Compo pipe	41 5 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton £19 10 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from February 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/9½	1/9	1/8½	1/8	1/7½	1/7
Labourers	1/4½	1/4	1/3½	1/3¼	1/2¾	1/2½

Aberdeen	A	Dumfriesshire	A²	Inverness	*	Perthshire	A²
Ayrshire	A	Dundee	A	Inverurie	A¹	Peterhead	A¹
Banff	B	Dunoon	A	Kincardineshire	A²	Renfrewshire	A
Berwickshire	A²	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A²
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A²
Doune	A	Forfarshire	A²	Moray and Nairn	B	Stewartry	A²
Dunblane	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²	Stornoway	A²
Dumfries	A¹	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

* This town has its own rates: Masons, 1/7½; Carpenters, 1/7½; Slaters, 1/7½; Plumbers, 1/8; Plasterers, 1/8½, but 1/9 is paid owing to the scarcity at present; Painters, 1/7½ and Labourers, 1/3.

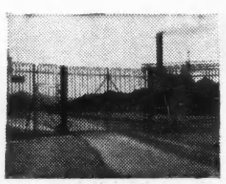
The information given in this table is copyright. Rates of wages in England and Wales are given on page 296.

THE SCOTTISH BUILDER

NEW BUILDINGS

BELLSHILL. — EXTENSIONS. — Mr. J. Stewart, Albert-street, Motherwell-Wishaw, has prepared plans for nurses' accommodation at the county maternity hospital.

DALSERF.—OFFICES.—Plans prepared by the architectural staff of Messrs. J. Nimmo & Co., Ltd., 21, Bothwell-street, Blythswood, Glasgow, for new offices, etc.



Fencing and Gates

For over 100 years Boulton & Paul Ltd. have been manufacturers and erectors of Wrought Iron and Wire Fencing. Highest quality; competitive prices. Estimates and advice given for any requirements.

Boulton & Paul Ltd
London: Horseferry House, S.W.1
Norwich

DUNDEE.—BUILDINGS.—Plans of proposed new buildings, etc., in Dundee have been lodged at the Office of the City Engineer, as follows :—120-122, Brook-street, and Burnett-street—alterations to shop premises for J. and E. Shepherd. Plans by petitioners.—96-98, Clepington-road—alterations to shop premises for Thomas Fitzpatrick. Architects, Carver, Symon and Ross, 62, Seagate.—71, Muirfield-crescent—garage for Arthur B. Edward. Architect, Thomas W. Ballantyne, 32, Castle-street, Dundee.

GLASGOW. — BUILDING. — The Dean of Guild Court has approved of the following plans: Scottish Co-operative Wholesale Society, 95, Morrison-street, Glasgow—extension to their tea warehouse; Governors of Glasgow Royal Infirmary—store; Salvation Army Trustee, 101, Queen Victoria-street, London—canteen hut.

NEWARTHILL. — OFFICES. — Plans have been prepared by Mr. T. Smith, architect, 3, Church-street, Coatbridge, for new offices for the Union Coal Co., Ltd., High-street.

PETTINAIN.—PREMISES.—Plans for dairy premises at the farm at Millhill prepared by Mr. Latto A. Morrison, Murrayfield, Biggar.

SALTCOATS. — CHURCH. — The Church of Scotland have approved of the proposal of the Ardrossan and Saltcoats Presbytery to secure ground for a church in the new housing area at New England.

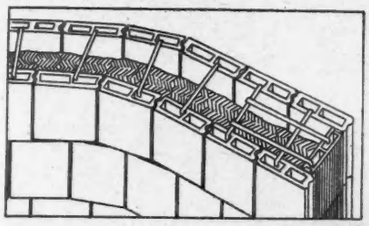
NEW BUILDINGS IN LONDON

HAMPTON. — EXTENSIONS. — The M.W.B. has approved an additional £8,700 in connection with the scheme for the remodelling work.

TRADE NEWS

Sand Stockades.

"Universal" sand stockades which have been constructed as protective units in front of many business premises have recently undergone a severe test by a bomb explosion which occurred within 30 ft. in front of one



SAND STOCKADES.

Illustrations showing construction and final appearance of sand stockades

(See this page.)

of the National Provincial Bank's premises, the windows of which were protected by these stockades. They were constructed with hard (tested Home Office approved) interlocking, knuckle-jointed hollow tiles tied together with metal straps and filled with rammed sand. It is claimed that these erections are hygienic, substantial and weather-resisting, and although thoroughly permanent so long as required they can be easily removed. Further, they can be erected in curved and practically any shape without special units.

Particulars of these and other A.R.P. constructions can be obtained from the Universal Concrete Constructions, 42, Victory House, Leicester-square, W.C.2.

Window Glass Protection.

A new material for the protection of window glass against blast has been placed on the market under the name of "Dufaynet," which combines a textile netting with transparent film, and is fixed to the whole surface of glass area to be protected. Being weatherproof and passing approximately 90 per cent. of available light, it can also be used to replace glass, and is fixed into wood or metal window frames with a special fixing cement. The material is supplied in rolls of any length, 21 in. wide. A special adhesive for fixing the material to glass is supplied by the manufacturers.

"Dufaynet" is supplied to builders' merchants and builders throughout the country at the following prices: In lots of 1,000 yards and over, 1s. 6d. per yard; in lots under 1,000 yards, 1s. 8d. per yard. "Dufaynet" adhesive: In gallon tins, 28s. per gallon; in ½-pint, 1-pint or ½-gallon packings, 28s. per gallon plus 10 per cent. "Dufaynet" fixing cement for glazing into metal or wooden frames without glass, 2s. 6d. per tube. One tube is sufficient to cover approximately 30 linear feet of glazing bar.

We are informed that "Dufaynet" has been tested by various authorities and is in use throughout the country in munitions and aircraft factories, public buildings, hospitals, etc.

We have tested a piece of glass treated with this net by shattering it forcibly, and find that every particle of the glass clings to the net, thereby preventing flying fragments which are the principal cause of air raid casualties.

Full particulars of the material and its application may be obtained from Dufay-Chromex, Ltd., Elstree, Hertfordshire.

BUILDINGS ILLUSTRATED

A DISTRICT ASYLUM HOSPITAL.

For the new hospital block illustrated on page 285 the mason work was carried out by Messrs. David Nairn and Son. Other subcontractors were: Joiner work, Bogie and Nicoll, Ltd.; plumber, Wm. Nicol and Sons; slater, Wm. Currie and Son; plaster, Alex. Hutchison and Son; glazier, D. and J. Edmond; tile, Toffolo Jackson; heating, Taylor and Fraser; electric light, Moncrieff Bros.; painter, Neil Nicholson; metal casements, Crittall Manufacturing Co., Ltd., and "Atlas White" cement, The Adamite Co., Ltd.

The measurers were Messrs. Jas. Gentles and Son, and the architect Mr. Walter Alison, A.R.I.B.A.

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery-lane, W.C.2, from the documents available at the Companies Registry.

PRECISION DEVELOPMENTS CO., LTD. (363067).—Registered August 31, 1940. 31, St. James-square, S.W.1. Consulting engineers, etc. Nominal capital: £1,000.

EARTH CONTRACTS, LTD. (363058).—Registered August 31. Caterpillar Island, Hatfield. Excavators, demolishers, contractors, etc. Nominal capital: £1,000.

W. H. WILSON (LOWESTOFT) AND CO., LTD. (363027).—Registered August 28. Public works contractors, etc. Nominal capital: £1,000. W. H. Wilson, The Woodlands, Wymondham, Norfolk.

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TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Ashton-under-Lyne.—Outside painting of 402 council houses and 12 flats on housing estates, for T.C. J. Lowe, Housing Manager, 63, Warrington-st.: *Yates & Lomas, Ltd., Ashton-under-Lyne; *S. B. Newton, Ltd., Salford; *J. Alcock, Hyde.

Barnes.—Modernising sanitary accommodation, for M.W.B.: *H. J. Whitman & Sons, £813 15s.

Barrow-upon-Soar.—Surface type brick shelter for 30 persons, rear of Council Offices, 133, Loughborough-rd., Leicester, for R.D.C. W. C. H. Curtis, S.:—

Sowden & Co.	£168 11 1
W. Jarvis	132 0 0
H. Tilley	113 10 0
*F. Garner & Sons	101 17 10

(All of Leicester.)

Birmingham. — Exterior decoration of various villas and bungalows at Monyhull Colony mental deficiency institution, King's Heath, for T.C.: *J. Broomfield & Son, 316, Belgrave-rd., Birmingham, 12.

Blackpool.—Conveniences at Starr Gate, for C.B. Jas. Drake, B.Sc., A.M.I.C.E., B.E. and S. Quantities by B.E. and S.: *Atherton Bros., Peter-st., Blackpool, £592 11s.

Bournemouth.—Painting, etc., at Fairmile House Institution and Cottage Homes, Christchurch, for C.B. P. C. Ford, Public Assistance Officer, 1, Wootton Mount: *Geo. Shears & Sons, Ltd., Oxford-rd., Bournemouth, £350.

East Kesteven.—External painting of 34 houses, for R.D.C. E. H. Sills, L.R.I.B.A., architect, Council Offices, Northgate, Sleaford: 4 houses, *H. H. Dove, Billinghay, Lincoln; 8 houses, *H. Wilcox, Station-rd., Ruskington, Sleaford; 20 houses, *R. Flatters, Billinghay, Lincoln; 4 houses, *W. Payne & Son, High-st., Heckington, Sleaford.

Glasgow.—Works for Corporation. T. Somers, architect, Office and Public Works, Municipal-bldgs.: St. John's school, cement work, *J. Allison & Sons, Ltd., Glasgow, £122 17s.; Alumree garage, glazing and allied work, *MacDonald & Hughes, Ltd., Glasgow; painter work, etc., at Townhead registration offices, *J. Allison, Glasgow.

Glasgow.—Storage accommodation at hospital, for Corporation. T. Somers, architect, Office and Public Works, Municipal-bldgs.: *R. Gilchrist & Sons, Ltd., Glasgow, £1,369 3s. 5d.

Grantham.—227 houses, with drains, fences, paths, roads and incidental works, for T.C. P. A. Benn, B.S.: * Hustwayte, Haydn-rd., Sherwood, Nottingham, £128,487.

Hebburn.—Cloakroom and lavatory accommodation at Methodist church, Charles-st.: *J. M. Black, sen., Back Glen-st., Hebburn.

Leigh.—Painting work at (1) Central and Manchester-rd. council schools; (2) C. of E. senior schools; (3) West Leigh C. of E. and West Leigh mixed schools; (4) St. Peter's schools; (5) Twelve Apostles R.C. schools, for E.C.: (1) *Rothwell's, £416; (2) *J. F. Leyland, £152; (3) *J. Peters & Son, 802, Atherton-rd., Hindley Green, £130; (4) *Building Dept., £228; (5) *Turner Bros, £165. (All of Leigh.)

¶**London (Air Ministry).**—Contracts to the value of £500 or over placed for week ended Sept. 7:—

Structural steelwork: Tees Side Bridge and Eng. Works, Ltd., Middlesbrough; Wm. Bain

& Co., Ltd., Coatbridge; Redpath, Brown & Co., Glasgow; Glasgow Steel Roofing Co., Ltd., Glasgow; and Francis Morton & Co., Ltd., Liverpool.

General maintenance work: Jas. Tomkinson & Co., Ltd., Liverpool; Wm. Arnott McLeod & Co., Ltd., Edinburgh; Prestige & Co., Ltd., London; and F. Shepherd & Son, Ltd., York.

Electrical work: Anderson, Angell & Co., Ltd., Woldingham; and Standard Telephones and Cables, Ltd., London.

Heating work: G. N. Haden & Sons, Ltd., London; and Norris Warming Co., Ltd., London.

Civil engineering work: Hadsphaltic Construction Co., Ltd., London.

London (War Department).—The following works contracts have been placed by War Department for the week ended September 7:

Norfolk: Miscellaneous work, Harry Pointer (Norwich), Ltd., 5, Guardian-rd., Norwich.

Staffordshire: Building work, Arthur Holmes & Sons, Ballow Bridge, Burton-on-Trent.

Berks: Miscellaneous work, R. Holford & Co., Ltd., Imperial Works, Walnut Tree Close, Guildford, Surrey; and Frank Batty & Smith, Ltd., 18, Spring-st., London, W.2

Hants: Building work, Fassnidge, Son & Norris, Ltd., 267, High-st., Uxbridge, Middlesex; and Johnson & Sons (Liphook), Ltd., Longmoor-rd., Liphook, Hants.

Co. Antrim: Hutting, T. McKee & Sons, Ltd., Imperial drive, Belfast.

Co. Down: Miscellaneous work (two contracts), Wm. Logan & Sons, Limestone-rd., Belfast.

Devon: Hutting, Davis Estates, Ltd., 352, Kilburn High-rd., N.W.6.

Oxfordshire: Hutting, Universal Housing Co., Ltd., Rickmansworth, Herts.

Surrey: Miscellaneous works, E. J. Privett, Ltd., West-st., Haslemere, Surrey.

Manchester.—Fire escape to additions to works, for Clifford Whatmough, Ltd.: *D. Walton & Co., Ltd., Clarendon-rd., Pendleton, 6; *John Hall (Oldham), Ltd., Crossbank-st., Oldham.

Middleton.—Internal painting and decorating: (1) All Saints' school, Rhodes; and (2) Rhodes council school, Rhodes, for T.C. Borough Architect: *F. & J. Pilling Bros., Birch-la., Rusholme, Manchester.

Ravenstruther. — Houses, etc. Samuel MacColl, Lanarkshire County Housing Architect, Hamilton: Excavation, brick and building, *Bryce & Symington, Ltd., Carluke, £2,478 1s. 7½d.; slating and roof work with roughcasting, *W. Dodds Bertram, Lesmahagow, £397 7s. 3½d.; painting, glazing, *G. Law & Sons, Bellshill, £101 1s. 3d.; joinery, carpentry and ironmongery, *Gilchrists, Ltd., Lesmahagow, £416 15s. 4½d.; electrical fittings and installation, etc., *N. Thomson, Motherwell-Wishaw, £162 2s.; plumber work and sanitary engineering, etc., *J. Laing & Sons, Lanark, £421 10s. 11d.; plaster, lathing, *J. Bertram & Sons, Ltd., Motherwell-Wishaw, £230 18s. 9d.

Scarborough.—Sewer works in Columbus Ravine, to prevent flooding, for T.C. H. V. Overfield, B.E.: *Direct Labour, £243.

Stockton-on-Tees.—Painting schools, for T.C.: Frederick Nattrass school, *Croft the Decorator, Stockton; Mill-la. infants' and deaf school, *E. Turner, Middlesbrough; Norton junior and infants' school, *F. Roe, Stockton.

Worcester.—Emergency hospital: *F. R. Freeman, Ltd., 25, Russell-sq., W.C.1.

Thurrock.—A.R.P. depot and cleansing station, for U.D.C. G. F. Andrassy, E. and S.:—

Myall Bros., Shenfield	£5,482	0
W. H. C. Heath & Sons, Ilford	5,200	0
Pugett Construction Co., London, S.E.1	5,004	0
Tokeley & Goodger, Ltd., Grays	4,301	11
F. E. Smith, Grays	3,700	0
*W. E. Walsham, Ltd., 64, Whitehall-la., Grays	3,626	0

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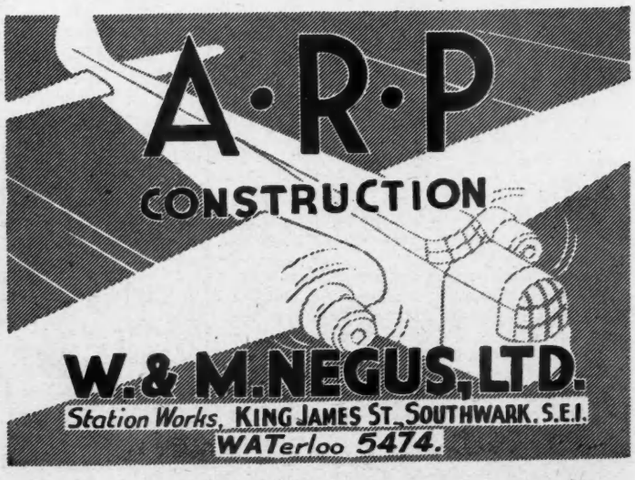

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